HELSINKI SCHOOL OF ECONOMICS (HSE)
Department of Accounting and Finance

CAVEAT EMPTOR

Mergers and acquisitions analysis in the telecommunications operator industry

Finance
Master's thesis
Karri Rinta
Fall 2004

Approved by the Council of the Department 2 / 11 2004 and awarded the grade good 70 points

KTT Matti Kelloharju KTT Sami Torstila

Helsinki School of Economics
Master's Thesis
Karri Rinta

Abstract
October 26, 2004

CAVEAT EMPTOR - Mergers and acquisitions analysis in the telecommunications operator industry

PURPOSE OF THE STUDY

The objective of this thesis is to determine whether the elevated mergers and acquisitions activity observed in the telecommunications service provider industry has been a value-adding strategy for the acquiring party shareholders. The evaluation is carried out by using event study methodology to observe the short-term share price reaction immediately before and after an acquisition is announced.

The study was extended to allow for cross-sectional variation in target company characteristics. Drawing upon similar studies conducted in banking and airline industries, I have identified certain financial and strategic characteristics, which are seen as desirable acquisition target characteristics. Thus, this thesis provides a framework for evaluation of potential acquisition candidates in the service provider industry.

DATA

The data in this study comprises of 57 events, each event being an announcement of an acquisition or a merger where the acquiring company is a telecommunications service provider. The data set covers a time period that begins in August 1994 and ends in October 2000. For each event, I have studied the share price reaction with different event windows for both the acquirer and the target as well as for the combined entity as a whole.

RESULTS

Overall, the study did not find statistically significant evidence to support my hypothesis that acquisitions would benefit the shareholders of the acquiring company. This is disappointing, given that recent literature had suggested that strategic acquisitions could potentially be value-adding also for the acquiring party shareholders.

However, once the study is extended to allow for cross-sectional variation among target companies, more interesting findings emerge. Apart from the obvious discovery that a high acquisition premium is inversely related to the subsequent share price performance of the acquirer, the study found some support for the notion suggesting that investors have preferred focus-preserving acquisitions instead of diversification-motivated transactions. This also corroborates that investors remain interested in focused companies and shun diversified conglomerates.

KEYWORDS

Mergers, acquisitions, telecommunications, event study, cross-sectional variation

1 Introduction

"Acquiring firms destroy shareholder value. This is a plain fact."
Mark Sirower, *The Synergy Trap (1997)*

Everyone knows this. Yet mergers and acquisitions (M&A) in 1998 totaled $2.4 trillion worldwide (Economist, 1999), representing a 50% increase from the year before. At the time of writing this introduction the first ever acquisition topping $100 billion was in the works, as the UK-based mobile operator Vodafone was attempting to acquire Mannesmann, a German conglomerate, with a stock-plus-cash bid worth approx. $130 billion. And even more perplexing, Mannesmann was trying to defend itself against the takeover in spite of numerous academic articles and studies by consultancies indicating how target shareholders by default gain in the acquisition process.

The objective of my thesis is to conclude whether the frenzied M&A activity in the telecom sector is in fact value adding for the shareholders of Vodafone and its acquisitive peers (Olivetti in Italy, abovementioned Mannesmann in Germany and SBC Communications in the US, to name a few). Mergers and acquisitions as a whole have been studied exhaustively in both financial and strategic journals. In chapter 3 I review some of the findings, which more or less agree with the statement above, proposed by Mr. Sirower in his seminal book *The Synergy Trap* (1997). While target firm shareholders often benefit from the premium paid for the acquisition, previous studies are near unanimous in their judgment that acquiring firm's shareholders can expect to lose in the process.

However, some recent evidence (Maqueira et al. 1998, Healy et al. 1997) indicates that the outcome for the bidding firm shareholders might not be so bleak after all. They report positive abnormal returns for the new entity following the announcement, indicating that markets value the deal as a whole favorably. Furthermore, the article by Maquieira et al. (1998) concludes, based on extensive empirical data, that 'related' mergers in their sample have been value adding not only for the target but also for the acquirer. The sample used by Healy et al. (1997) is more limited but arrives in a generally same conclusion when it comes to so-called 'strategic' mergers, defined by authors as 'friendly transactions that typically involved stock payment for firms in overlapping businesses' (Healy et al. 1997).

These findings motivated me to pursue the topic further. As illustrated in Chapter 3, 'strategic' or 'non-conglomerate' mergers have found support in numerous other studies

besides the two mentioned above. When mergers are grouped according to relatedness of the participants' core business, it is shown that this degree of relatedness and post-announcement positive abnormal returns for the bidder has positive correlation. Kim and Singal (1993) and Singal (1996) have taken this approach a step further to investigate mergers and acquisitions in a specific industry, namely the airline industry. According to their results, these 'mergers of equals' (equal operations, not necessarily equal in size) have been beneficial for both shareholders, acquiring and acquired.

This thesis is organized as follows. Chapter 2 is devoted to introducing the basic concepts related to mergers and acquisitions, including terms and definitions used as well as the most commonly cited reasons explaining the urge to merge. As noted earlier, Chapter 3 reviews some of the existing academic literature on mergers and acquisitions, including an in-depth look into the M&A activity in banking and airline industries, which I consider to have many similarities with the telecom operator industry. In Chapter 4 I describe the characteristics of the communications service provider industry in more detail and identify the industry-specific drivers for increased consolidation. In Chapters 5 and 6 I discuss the hypotheses, methodology and the empirical results of my research. Finally, in Chapters 7 and 8 I present my conclusions and provide suggestions for further research.

2 Basics of M&A

2.1 Terms and definitions

Different forms of transactions characterize the market for corporate control. A *merger* is defined as 'the formation of one company from two or more previously existing companies' whereas an *acquisition* can be described as 'an offer by or on behalf of one firm for the shares of another. Also called take-over bid.' (Citibank, 2000). The difference between these two is often hard to determine prior to formation of the combined entity, where the distribution of managerial positions and corporate control dictate the actual nature of the transaction.

Both mergers and acquisitions are negotiated between the participants' management teams. By contrast, a *tender offer* is a 'public offer to a company's securities holders to purchase some or all of their securities, typically with the intent of acquiring control of the company' (Citibank, 2000). Tender offer is also known as a *hostile bid* due to the fact that it often takes place after the negotiations with target's management have not yielded the desired results.

Furthermore, mergers and acquisitions can be characterized as either financial or strategic, depending on the primary motive behind the transaction. The impetus of the former is to acquire companies with undervalued assets, which are subsequently put into a more efficient use, often under a new management, or broken into smaller parts and sold to the highest bidder, with an expectation that the sum of the parts exceeds the company's market value as a whole. I will not spend too much time on financial mergers as the events that I will focus on, i.e. mergers and acquisitions within a telecom operators industry, are motivated by strategic reasons. However, I will discuss the financials as one part of the due diligence process related to the target selection.

2.2 Reasons for mergers – why acquire?

Management literature provides an abundance of reasons helping to explain the strategy for growth by acquisition. As discussed above, the most clear-cut rationale is undervaluation; those who recognize this anomaly and possess the means to remedy the situation will target companies, which are undervalued by financial markets, relative to their intrinsic value.

2.2.1 Financial reasons

An often-proposed motive for pure-play financial acquisition can be the diversification of equity risk with the intent of stabilizing earnings and reducing risk. This approach is often justified with basic investment theory, which shows that as one increases the number of assets in an investment portfolio with imperfectly correlated returns, the total variance in the return of the portfolio decreases. Lewellen (1971) as well as Levy and Sarnat (1970) have applied the theory to prove that mergers between companies with non-correlated cash flows can in fact reduce their default risk. However, Damodaran (1994) refutes this claim and argues that a takeover, which is motivated only by risk-diversification considerations, has no effect on the combined value of the two firms involved, since the shareholders of the company always have the option to buy shares in the prospective target, effectively achieving the desired level of diversification without the need for the companies to combine.

Further synergies can be derived from improved financial status of the larger entity. Eccles et al. (1999) cite improved credit terms, larger capacity for debt as well as more efficient pooling of working capital and surplus cash as some of the financial benefits ensuing from a merger or an acquisition. The authors (Eccles et al. 1999) provide an example of financial engineering benefits by illustrating a case where the transaction allows the acquirer to refinance the target's debt at a more favorable borrowing rate available to the acquirer. Consequently, the value of a strategically-motivated transaction can be augmented through optimisation of capital allocation among the merging entities.

Finally, the impact of taxation needs to be factored into the equation. Eccles et al. (1999) propose that the tax considerations surrounding a planned acquisition are two-fold: they are often a barrier that must be overcome to justify the deal but once the deal is completed, they provide opportunities for synergistic gains. Generally these proposed 'loop-holes' involve transferring debt, taxes, tax benefits, brands and other intellectual property between subsidiaries with differential tax regimes (Eccles et al., 1999).

For example, if one of the firms has tax deductions that it cannot use because it is losing money, while the other firm has income on which it pays significant taxes, the combining of the two firms can lead to tax benefits that can be shared by the two firms. The value of this tax synergy is the present value of the tax savings that accrue because of this merger. Another option available is the write-up of the assets of the firm being taken to reflect new

market value, leading to higher tax savings from depreciation in future years. (Damodaran, 1994)

2.2.2 Synergies

However, valuation and financial metrics play the second fiddle in strategic transactions, which are characterized by the fit between the two companies. Attempts to quantify the benefits of this fit are often called *synergies*. Synergies are the result of combining two enterprises with varying degree of overlapping functions. In the past, the word synergy was a synonym for post-acquisition lay-offs, since the focus of the integration process was mainly targeted at eliminating the overlaps in the new entity. However, as of late these operational synergies (i.e. cost savings) have been complemented with revenue enhancements through cross-selling of products and services (Eccles et al., 1999). Borrowing from the economics terminology, these synergy benefits can also be characterized as economies of scale and scope.

Economies of scale exist when the average cost of production is a decreasing function of the production volume (see e.g. Varian, 1999). When two entities combine and eliminate the redundancies by consolidating their overlapping support functions, substantial savings in overhead expenses can be realised. When this overhead is spread over the combined production volume, cost per each unit of production is lower. Hence the shrinking relative share of fixed costs contributes to the increased productivity when the size of the firm is increased. On the variable cost side, a larger production volume presents the firm with increased purchasing power with its suppliers and a potential for more efficient usage of installed manufacturing capacity, contributing towards improved productivity and a consequent decline in average variable costs.

Economies of scope provide an additional source for operational synergies. Scope economies occur when it is more cost-effective to produce two or more products jointly in a single entity than in two separate companies (Berger and Humphrey, 1994). Cross-selling of complementary products and services is a frequently cited example of scope economies. Cross-selling occurs when the merger or acquisition participants gain access to one another's customers after the transaction and start offering their products for each other's customers. This results in post-acquisition synergistic revenue gains if the combined entity increases its sales over the level that would have been achieved by the acquirer and target had they been run independently.

2.2.3 Market power

Increased market power, in the form of higher market share, has motivated various M&A transactions. When the market concentration reaches a certain level, the remaining participants will come to recognise the interdependence of their actions. This will guide their strategy towards a 'tacit collusion' where firms implicitly agree on prices and quantities, creating a monopolistic industry in the process (Copeland and Weston, 1988). Basic microeconomic theory has shown that the companies operating in a monopolistic industry can maximize their profits by restricting the quantity supplied, effectively pushing the market prices higher.

Berger and Humphrey (1994) include the market power topic in their review of research conducted in banking industry consolidation (discussed in more detail in section 3.6). Most of the studies reviewed by Berger and Humphrey (1994) find a positive statistical relationship between the bank's profitability and its market share. These findings suggest that the increased market power is one of the sought-after benefits when it comes to horizontal mergers in the banking industry. The authors offer further theoretical support for the notion with *structure-conduct-performance* and *relative-market-power* hypotheses. The first hypothesis is basically identical with the outcome in the 'tacit collusion' market structure (see previous paragraph), where market prices increase as a function of the industry concentration. The latter hypothesis asserts that only those companies with large market share and well-differentiated products are able to exercise market power and extract additional surplus from consumers. This hypothesis provides the framework for current merger regulation, which prompts the authorities to take action only when the industry concentration reaches a certain level.

2.2.4 Agency conflict and hubris hypothesis

Previous explanations for selecting an acquisition as a vehicle for growth are mainly bona fide attempts to increase firm value. A more dubious logic for acquisitive behavior is grounded on agency theory and its applications in corporate governance. Weston et al. (1990) quote Jensen and Meckling's (1976) seminal article in their description of the principal-agent–framework between the owners and the managers of the firm. Ever since the separation of the ownership and control, the incentives of the owners (principal) and the managers (agent) no longer coincide. It is a widely held belief that one of the manifestations of this conflict can be seen as the increased M&A activity. Mueller (1969)

had earlier coined a term 'managerialism', which illustrated the management's incentive to increase the firm size when the level of their compensation correlates positively with size. This results in a lower-than-optimal rate of required return adopted for acquisition valuation, leading to acquisitions, which do not maximize the shareholder value.

Roll (1986) contributed to the theme by defining the hubris hypothesis, which argues that in the absence of incentive mechanisms aligning the manager's interests with those of shareholders', manager's self-interests lead to overly optimistic expectations in target valuation. Roll reasons that this disproportionate exuberance results in overpaying for targets, transferring a majority of the acquisition-related gains to the target shareholders. Countless empirical studies have found compelling support for the hubris hypothesis, since the value transfer from acquiring firm shareholders to target has been documented in virtually every merger-related research article published (see next chapter for a more detailed review of relevant academic literature).

2.3 Target selection

Once the decision to seek growth through an acquisition has been made, the next step in the process is to screen the list of potential acquisition candidates. There is often more than one prospective acquisition candidate, which fulfils the strategic criteria set forth by the acquirer. Once the candidates are identified, a due diligence process is initiated and the strategic (and financial) metrics of each potential target are analyzed. In this section we will review the literature, which has focused on identifying these common denominators for acquisition targets. We will use this information later to identify those operational parameters, which we expect have played the most important role in the due diligence process in the telecommunications operator industry.

Palepu (1986) addressed target selection in his article '*Predicting Takeover Targets*', where he constructed a framework for identifying likely takeover candidates. He singled out six variables, which he used to build six hypotheses concerning the likelihood of an acquisition. His hypotheses (some of them have been discussed before) were as follows:

H1. *Inefficient management hypothesis*: Firms with inefficient management are likely targets. Test variable: Return on equity (ROE).

H2. *Growth-resource mismatch hypothesis*: Firms with a mismatch between their growth prospects and financial resources are likely targets. Test variables: Sales growth, ratio of liquid assets to total assets and debt/equity ratio.

H3. *Industry disturbance hypothesis*: Firms that operate in an industry subject to 'economic disturbance' are likely targets. Test variable: Merger activity in certain industry.

H4. *Size hypothesis*: The likelihood of the acquisition decreases with the size of the firm. Test variable: Net assets

H5. *Market-to-book hypothesis*: Firms whose market values are low compared to book values are likely acquisition targets. Test variable: Market-to-book ratio

H6. *Price-earnings hypothesis*: Firms with low P/E ratios are likely acquisition targets. Test variable: Price-to-earnings ratio

Palepu (1986) then constructed a logit model for each variable and ran a likelihood test to determine which factors had the most predictive power in identifying takeover targets. Of the six hypotheses presented, he found statistically significant support for the growth-resource mismatch (H2) and size (H4) hypotheses. As expected, the relationship between market-to-book (H5) ratio and acquisition likelihood was negative but this could not be confirmed to be statistically significant. Other three variables produced conflicting results. However, when Palepu (1986) used these variables and hypotheses to predict actual takeover targets, the explanatory power of the model was low.

Hasbrouck (1985) also acknowledged that if the selection criteria for acquisitions could be identified, more accurate predictions could be made regarding future acquisition targets. He chose to focus on Tobin's q (market value/replacement value of assets), level of liquid assets and financial leverage as the most important variables in acquisition target selection. Hasbrouck found out that a low Tobin's q was positively related to a probability of being acquired. A weaker (inverse) relationship was found to exist between target's current financial resources (measured as current financial assets/market value of equity) and the likelihood of becoming an acquisition target. The latter finding supports Palepu's (1986) hypothesis concerning the growth-resource mismatch as both Palepu and Hasbrouck confirmed the inverse relationship between financial liquidity and the probability of becoming a target.

Subsequent research has confirmed Hasbrouck's (1985) results concerning Tobin's q. Lang, Stulz and Walkling (1989) find that abnormal returns in tender offers are higher if a low q target is taken over by a high q acquirer. In this particular case the bidding firm shareholders enjoyed abnormal returns following the announcement of an acquisition. The authors interpret Tobin's q as a proxy for managerial performance and interpret the results as suggesting that greater benefits accrue from transactions where a well-managed company (high q) acquires a poorly-run company (low q). Servaes (1991) extends the previous analysis to mergers and verifies that Tobin's q remains an important determinant of abnormal returns in these transactions as well. Servaes also introduces various control variables into his model in order to better isolate the effect of Tobin's q. Relative size, method of payment, number and nature (friendly vs. hostile) of bidders have an effect on abnormal returns but even after these are eliminated, there exists a strict, statistically significant relationship between Tobin's q and abnormal returns.

2.4 Legislation – who can you acquire?

Mergers and acquisitions are subject to a close regulatory scrutiny. This needs to be taken into account when a company contemplates an acquisition. Regulatory authorities in charge of competitive policy seek to eliminate anti-competitive practices such as restrictive agreements and other abuses of a dominant position, which ensue from excess market concentration. Vertical market concentration occurs when a single firm owns all of the functional components reaching from production to supply to retail consumers. Horizontal market concentration takes place when too few potential service providers to assure competitive behavior dominate a single element in the supply chain from producer to consumer. (EC DGC[1], 2000a)

2.4.1 Merger regulation within the European Union

Within the European Union the competition policy legislation applicable to mergers is provided by the European Council regulation known as the Merger regulation (Regulation (EEC) No 4064/89). Merger regulation prohibits mergers that create or strengthen a dominant position in the market. A firm is in a dominant position when it is able to act on the market without having to take account of the reaction of its competitors, suppliers or

[1] **E**uropean **C**ommunities, **D**irectorate-**G**eneral for **C**ompetition

customers. According to recent rulings by the Commission a dominant position is created when a single entity accounts for more than 30% of any single product or service market after the transaction. The proposed merger or acquisition falls under European Community (EC) jurisdiction if the trade between member states of European Union is affected. (EC DGC 2000a)

For example, a proposed merger between Telia and Telenor, both incumbent telecommunications operators in their home markets of Sweden and Norway, raised regulatory concerns at the Community level. Apart from having a substantial amount of overlapping activities in the fixed and mobile telephony and cable television businesses with subsequent threat of excessive horizontal market concentration, Telia and Telenor were found to be each other's closest actual and potential competitor in Norway and Sweden. The pre-merger level of competition, which functioned as an effective price constraint in the relevant markets, would have been removed following the merger, leading to an increased dominance in the home markets of both Telia and Telenor. Eventually the merger fell through due to other reasons, but according to EC DGC, the merger would have been blocked by the competition authorities due to its anti-competitive potential. (EC DGC, 2000b)

2.4.2 Merger regulation in the US

In the United States it is the Antitrust Division within the Department of Justice that enforces the merger legislation. Regulatory framework is based on the Sherman Act, dating from 1890, which laid the groundwork for antitrust policies by stating that 'Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce, shall be deemed guilty of a felony' (§ 2 Sherman Act, 15 U.S.C. § 2). This was later complemented with the Clayton Act, approved in 1914, which prohibits acquisitions that may 'substantially lessen competition or tend to create a monopoly in any line of commerce' (§7 Clayton Act, 15 U.S.C. § 18).

Subject to the statutory provisions laid out in the Sherman and Clayton Acts, the Department of Justice (later DoJ) outlines its enforcement policy in its '*Guidelines*'. Guidelines have been constructed for both horizontal and non-horizontal mergers. Non-horizontal mergers involve firms that do not operate in the same markets, having no explicit effect in the degree of product market concentration. However, these non-

horizontal mergers can take the form of vertical mergers, which are challenged by the DoJ if the transaction has substantial potential to create barriers to entry or price collusion at some level of the industry value chain. (Department of Justice, 1984)

Guidelines for horizontal mergers are crafted to encounter the anti-competitive effects arising from mergers between parties operating in the same industry. The merger and the related parties are assessed to see whether the merger would significantly increase concentration. In light of the market concentration appraisal and other factors that characterize the market, potential adverse competitive effects are identified and their effect estimated. Further on, the position of a potential entrant is evaluated with regards to the proposed merger. Final step in the investigation looks at merger participants to determine whether the synergistic efficiency gains promoted are in fact unattainable otherwise or if either party of the transaction is likely to fold if the merger does not take place. (Department of Justice, 1992)

The attempted horizontal merger between MCI WorldCom and Sprint, second and third largest long-distance telecommunications operators in the US, prompted the DoJ to contest the deal (Department of Justice, 2000). The reason cited was that the combined market share of the participants' main business lines would have exceeded 30% in numerous cases. According to the DoJ filing, WorldCom and Sprint are the only substantial competitors to AT&T and to each other in the residential long distance telephone and several other telecommunications markets. In this particular case it appears that DoJ's decision was strongly affected by AT&T's dominance in the US long-distance telecommunications market, since the merger between MCI WorldCom and Sprint, had it gone through, would have reduced the number of major players from three to two. This would have had an undesirable impact on market concentration, since the 'Big 3' control over 80% of the residential long-distance business, both nationally and internationally (Ibid).

2.5 Valuation - how much to pay?

Once the acquirer has determined the potential target candidates and assessed the probability for regulatory approval of the transaction, the next logical step is to determine the value of the target. This is necessarily a subjective exercise since the value of a certain target is a function of each prospective acquirer and the respective fit between the companies. Therefore only a general framework can be illustrated to describe the valuation

process with case-by-case adjustments needed when applied for target valuation in practice.

2.5.1 Components in target valuation

Eccles et al. (1999) present the following exhibit to illustrate the distinct concepts in acquisition valuation. The most basic value of the company, its intrinsic value, is based on the discounted value of expected future cash flows. This status quo valuation assumes that company continues its current operations infinitely. By the same token, market value complements the intrinsic value by reflecting expectations related to any changes in the current structure, revenue projections or profitability estimates.

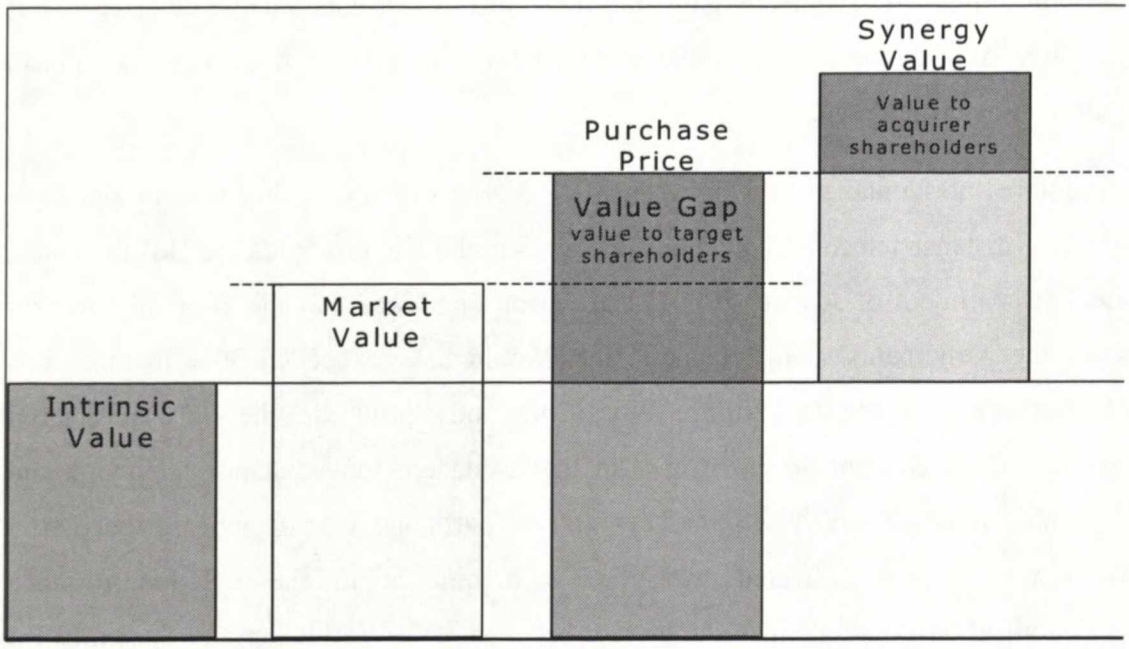

Figure 1. Breakdown of target valuation (Eccles et al. 1999)

However, to gain acceptance from the target company shareholders, an acquirer often needs to pay a premium over the prevailing market price. In the figure above, the difference between the purchase price and the market value represents this premium, the gain attributable to target shareholders when the transaction is completed. As explained in the next chapter, this 'value gap' will fluctuate as a function of the acquirer's stock between the announcement date and completion if the transaction is conducted partly or fully in stock. Finally, the 'synergy value' represents the expected returns, or synergistic

benefits, for the acquiring party shareholders, which are earned over and above the purchase price paid.

Eccles et al. (1999) define the synergy value as the discounted future cash flows derived from improvements achieved when the two companies are combined. These are the improvements expected to exceed those that market already anticipated from the individual companies as stand-alone entities. Figure 1 illustrates clearly how vulnerable the acquirer shareholders are if the expected synergy gains fail to materialize. If the post-acquisition integration proves more difficult than expected, total gains to acquiring firm's shareholders could become negative.

2.5.2 Procedure for synergy valuation

If the acquisition is motivated by substantial synergy expectations, as is often the case in strategic acquisitions, Damodaran (1994) offers the following procedure for target valuation. First, the firms involved in the merger are valued independently, by discounting expected cash flows for each firm at the weighted average cost of capital for the firm. The value of the combined firm, with no synergy, is obtained by adding the values obtained for each firm. Next, the effects of synergy are built into expected growth rates and cash flows, and the combined firm is re-valued with synergy. Value of synergy can be derived by subtracting the value of the combined firm, excluding synergies, from the value of the combined firm when synergies are included.

More explicitly, Damodaran (1994) identifies the necessary drivers to assess the magnitude of these synergies. He argues that if the synergies are to be realized from economies of scale, the respective valuation inputs affected are the future revenues and operating margins. Operating synergy can be quantified by estimating the post-merger operating margin for the combined entity along with revenue projections for the future. On the revenue synergy side, if the acquisition gains are expected from the availability of more profitable projects, the combined entity should achieve a higher return on equity (ROE). Cross-selling and other revenue enhancements can also contribute to a higher future growth rate and provide a vehicle for extended higher-than-average growth rate projections. Last but not the least, the acquirer will need to conduct a careful analysis to approximate the time period when the synergy gains can reasonably be expected to start affecting cash flows.

2.5.3 Risk analysis

In figure 1 above, I illustrated the acquirer's full exposure to synergy risk. If synergies fail to materialize as expected and factored into the acquisition price, the acquiring firm shareholders could see their wealth eroded in the acquisition process. Rappaport and Sirower (1999) have proposed a method called Shareholder Value At Risk (SVAR) to assess the relative magnitude of risk exposure related to expected synergies. The SVAR-index is calculated by dividing the acquisition premium percentage with a market value of the target relative to the acquirer.

$$SVAR = \frac{\text{Pr}\,emium,\%}{MC_{acquirer} \Big/ MC_{t\,\text{arg}\,et}}$$

Rappaport and Sirower (1999) consider the SVAR-index as a 'bet your company' index, which shows how much of the acquiring company's value is at risk if post-acquisition synergy gains fail to materialize. Higher the premium paid and/or lower the relative size of the acquirer, the riskier the transaction is for the acquiring firm shareholders.

2.6 How to pay – structuring the deal

Once the acquirer has completed the target evaluation, the next logical step is to determine the method of payment. In 1988, at the height of the 80's merger activity, nearly 60% of the largest deals were paid entirely in cash with less than 2% paid fully in acquiring company's stock (Rappaport and Sirower, 1999). In ten years time this trend has reversed itself, with pure stock-for-stock mergers representing half of the large deals conducted in 1998 while only 17% were paid entirely in cash (Ibid).

Two interrelated explanations can be offered to explain the shift from cash to stock. First, the absolute size of the large deals has gone up dramatically, with substantial premiums paid over the book value of target assets. To avoid the subsequent charge in earnings (see next chapter), acquirers have a strong incentive to use their stock as a method of exchange in order to qualify for preferential accounting treatment. In addition, the bull market of the late 90's inflated the share prices and market capitalization of companies in certain industries, encouraging them to use their own stock as acquisition currency.

2.6.1 Rationale for stock transactions

Accounting treatment (next chapter) aside, the main distinction between cash and stock transactions relates to the sharing of risk and ownership in the combined entity. In an all-cash transaction the roles are clear-cut: the acquirer assumes full ownership and subsequently bears the entire risk related to predicted efficiency and revenue gains ensuing from the acquisition. In stock transactions the risk is shared with selling shareholders, since they will retain an ownership stake in the combined entity. (Rappaport and Sirower, 1999)

This risk can be distributed in two ways, depending on how the transaction is structured. If the participants agree on a fixed number of acquirer shares to be exchanged for each share in the target, or the exchange ratio, the actual value of the deal is dependent on the post-announcement share price performance of the acquirer until the deal is completed. Another approach fixes the value of the deal while the actual number of the shares, the exchange ratio, is not determined until the closing date. Therefore the actual distribution of the ownership is unknown until the deal closes and is a function of the acquirer stock price performance between the announcement and the closing date. (Rappaport and Sirower, 1999)

Stock-based transactions are usually structured as fixed-number deals. In this case the target company shareholders are particularly vulnerable to a fall in the price of acquiring company's stock. This is why the sellers often require a collar, a pre-specified range of the acquirer share price, to be implemented as a part of the deal. During the period between the announcement and the deal closing the acquirer's share price can fluctuate within this range. If the share price hits the minimum of this range, the deal is either called off or the terms of the transaction are renegotiated (possibly increasing the size of the cash component). If acquirer's stock reaches the maximum of the range before the closing date, either a possible cash component or the exchange ratio of shares is reduced. (Rappaport and Sirower, 1999)

2.6.2 Signaling hypothesis

Previous discussion focused on the distribution of risk related to the proposed transaction. When choosing between cash or stock as acquisition currency, Myers and Majluf (1984) argue that the acquirer will prefer cash if the management believes that their stock is undervalued. This has led to a formulation of *signaling hypothesis*, which states that when cash is used to finance the acquisition, it implicitly communicates the management's

perception that their shares are undervalued. On the contrary, when a majority of the acquisition is funded with acquirer's own stock, a signaling hypothesis suggests that the acquirer considers its stock to be overvalued. The payment method issue has been researched exhaustively with nearly unanimous support for the signaling hypothesis. At least Huang and Walkling (1987), Travlos (1987) and more recently Loughran and Vijh (1997) document higher returns for both bidding and target firms when the acquisition is financed with cash rather than stock.

However, Myers and Majluf (1984) also argue that the chosen method of payment is also a function of the acquisition mode. As defined earlier, mergers are usually friendly deals that enjoy the cooperation of both management teams. On the other hand, tender offers are made directly to target shareholders, usually to overcome the resistance of target company's management. Martin (1996) has shown that mergers are often financed with acquirer's stock whereas tender offers are predominantly cash financed, implying that the method of payment is at least partly endogenous to the acquisition mode.

Rau and Vermaelen (1998) investigate the long-run performance of cash and stock financed mergers and acquisitions. In their sample they find considerable support for the endogenous nature of payment method selection with acquirers in tender offers outperforming their merging counterparts. However, when the authors classified their merger sample according to acquirer's book-to-market ratios, it was found that highly valued acquirers (low book-to-market ratios) performed exceptionally poorly, earning negative abnormal returns of some 17% when compared to their non-acquisitive peers. This conclusion was found to be independent of the method of payment. The results imply that not only the acquisition mode (merger vs. tender offer) but also other factors (in this case the book-to-market ratio of acquirer) undermine the applicability of signaling hypothesis as a predictive tool for determining post-acquisition performance in mergers and acquisitions.

2.7 Accounting method

As hinted above, the selected payment method and the corresponding accounting treatment of an acquisition has profound effects on the combined entity's balance sheet and income statement. Essentially the acquirer can choose between two accounting procedures, either the purchase method or the pooling of interests (pooling) method. These methods of accounting are very different, and the choice primarily relies upon the intentions of the

acquirer and the seller. Purchase accounting must be used if cash represents more than 90% of the purchase price, while pooling of interests is necessary if stock constitutes at least 90% of the total.

2.7.1 Purchase vs. pooling

The purchase accounting has both balance sheet and income statement effects. On the balance sheet side (assuming a 100% cash transaction), the buyer acquires the assets and liabilities of the seller, but the seller's equity is not acquired. The acquired assets and liabilities are restated to reflect their current market value. In addition, formerly unrecognized 'off-balance-sheet' items may also have to be recognized at their fair market values (e.g. pending litigation and employee benefit plans). The write-up of seller's balance sheet items comprises the first part of the purchase price. Next, the purchase price is allocated to the seller's identifiable intangible assets. When there is no other identifiable tangible or intangible asset to which the purchase price may be allocated, the remaining portion of the purchase price is accounted as goodwill. Essentially, the seller's equity becomes goodwill upon the acquisition. (Mercer, 2001)

Goodwill is considered an asset, since it possesses the capacity, as any other assets, to produce cash flows, providing future economic benefits for the acquiring company. As with any tangible or intangible asset, the acquired goodwill has to be amortized against future earnings. Thus, to avoid this non-cash charge in future earnings has induced companies to prefer the pooling of interests method to account for the transaction, since this technique generates no goodwill.

In the pooling method of accounting (assuming a 100% stock transaction), the two parties are treated identically where there is no acquirer or seller on the balance sheet. The balance sheets of the two parties are combined and the common stock increased by the amount of shares issued to the seller in the transaction. The fair market values of the assets involved are not recognized for either company, but prior periods are restated for the combined entity. Essentially, the purchase price equals the value of shares issued to the acquired company in the transaction with no goodwill to be amortized against future earnings. (Mercer, 2001)

2.7.2 Regulatory status in the US today

The availability of pooling method contributed significantly to the mergers and acquisitions boom seen in the late 1990's. Thus, the Financial Accounting Standards Board (FASB), responsible for establishing and improving the standards of financial accounting and reporting in the US, has lobbied for the elimination of pooling method for years. Pooling method was originally created as an accounting procedure to be applied in the so-called 'merger of equals', when it is impossible to determine which one of the merging companies is the acquirer. FASB argues that the method has since been widely abused in certain transactions, which fulfill the form but not the spirit of the regulation (Johnson and Petrone, 1999a).

FASB cites the following reasons to justify the elimination of pooling accounting. First, a certain set of criteria must be satisfied for a transaction to qualify for pooling accounting. These 12 conditions, apart from obliging the acquirer to execute the transaction mainly in stock, include provisions, which e.g. prohibit recent divestitures or stock buybacks. The restrictions also extend to post-merger period as significant divestitures are explicitly prohibited for as long as two years after a transaction. While attempting to qualify for pooling treatment, a company runs a risk of forgoing profitable investments or committing itself to actions, which do not maximize shareholder value in the long run. Second, pooling method provides less useful information regarding the characteristics of the deal, imposing costs that are borne by investors attempting to assess the financial viability of the transaction. Pooling method largely ignores the value of assets acquired, nor does it recognize any previously unrecorded liabilities, concealing the necessary information required to evaluate subsequent performance of the investment. Lastly, the FASB argues that those companies qualified to use pooling accounting for acquisitions have a significant advantage over non-qualified rivals in bidding contests. This can result in an inefficient allocation of economic resources, since the companies capable of using the pooling method are not necessarily the best fit for the acquired companies even if they are willing to pay more than their rival bidders restricted to use only the purchase method. (Johnson and Petrone, 1999a)

Not surprisingly, the most vocal supporters of the pooling method are the large companies with an acquisitive history and/or aspirations. Recent mega deals, had they been accounted using the purchase method, would have resulted in an enormous amount of goodwill to amortize, depressing future earnings substantially. Proponents of the pooling method

predict that the ongoing wave of consolidation, supposedly generating substantial improvements in general welfare, would grind to a halt if the pooling method were eliminated. The basis of their formal defense attempts to refute FASB's view of goodwill as a wasting asset, which could be measured reliably, rendering the amortization unnecessary (Johnson and Petrone, 1999b).

On April 22, 1999 the FASB took a concrete step towards the elimination of pooling accounting for consolidations by voting for the purchase accounting as the only acceptable method for mergers and acquisitions (FASB, 1999). The accounting board said in the statement that it expected the new rules to be effective for mergers or acquisitions announced after Jan. 1, 2001. In response, the investment community suggested three alternative methods for goodwill accounting: immediate-write-off, nonamortization and a mixed approach of both amortization and nonamortization (FASB, 2000). FASB has since rejected the write-off option and reconfirmed that the acquired identifiable intangible asset (in this case goodwill) should be amortized over its 'useful economic life' (Ibid).

In January 2001, FASB issued a statement where the organization reconfirmed its plans to eliminate the pooling method of accounting. According to a FSAB statement, all business combinations would be accounted for using the purchase method and the pooling method would be eliminated. In July 2001, FASB followed up with Statements 141 and 142, which effectively eliminated the use of pooling method in transactions initiated after June 30, 2001 (Statement 141, Business Combinations) and discontinued the practise of goodwill amortization (Statement 142, Goodwill and Other Intangible Assets). (FASB, 2001)

One obvious consequence arising from the adoption of Statement 141 is that cash-financed transactions will once again grow in popularity. As acquiring companies lose the ability to disguise the premium they pay as non-cash amortization charges, shareholders in the acquiring company are less inclined to vote in favor of stock-based transactions. Also, Statement 141 obliges more stringent recognition and allocation of intangible assets, implying that the acquiring company now has to recognize an acquired intangible asset separately from goodwill, if the asset meets the separability criterion: the intangible asset is capable of being separated or divided and sold either separately or as part of a group of assets. Thus, it has been proposed that that the acquirer will have a strong incentive to immediately spin off a portion of the business that does not fit its long-term strategic goals, allowing the acquirer to minimize the amount of goodwill it needs to carry on its own balance sheet. (BDO Seidman, 2002)

Following Statement 142, the acquiring company is no longer allowed to amortize goodwill annually, but now will have to test it for impairment every year. According to the statement, goodwill is considered impaired when its carrying amount exceeds its fair value. FASB proposes a two-step impairment test to identify potential goodwill impairment and to measure the amount of goodwill impairment. First, to identify a potential impairment, a company should compare the fair value of a reporting unit to its carrying amount, including goodwill. If the fair value of the reporting unit is greater than its carrying amount, goodwill is not considered impaired and the second step is not required. However, if the fair value of the reporting unit is less than its carrying amount, a company must perform the second step to measure the amount of the impairment loss. In the second step, if the carrying amount of goodwill exceeds its implied fair value, a company should recognize an impairment loss for the amount of this excess. (BDO Seidman, 2002)

2.7.3 Accounting criteria in Europe

Outside US the use of pooling method has been less pervasive. It is generally allowed if the conditions set by the International Accounting Standards (IAS) are met. IAS 22 deals with business combinations and lists the qualifying criteria for 'uniting of interests' (=pooling) as follows:

1. *The substantial majority of voting common shares of the combining enterprises are exchanged or pooled*
2. *The fair value of one enterprise is not significantly different from that of the other enterprise*
3. *The shareholders of each enterprise maintain substantially the same voting rights and interests in the combined entity, relative to each other, after the combination as before.* (IAS 22.16, 1993)

Criterion number two clearly indicates that the pooling method is to be used only in the so-called merger of equals. This is further emphasized by the IAS 22, which defines the uniting of interests as '*a business combination... such that neither party can be identified as the acquirer*' (IAS 22, 1993). If these conditions are met and the transaction is recorded using the uniting-of-interests method, balance sheets of the merging entities are combined and restated for the previous years with no goodwill to amortize.

According to the IAS, the purchase method should be applied in business combinations in which one of the entities is noticeably identified as an acquirer. The purchase method procedure is nearly identical to the one followed in the US, where the difference between

the price paid and the fair value of net assets recorded as goodwill. Regarding the amortization of the goodwill, the IAS 22 was revised in 1998 to allow for amortization periods exceeding 20 years if there is enough evidence to support the notion that the useful life of goodwill will exceed 20 years (IAS 22, 1998).

3 Literature review

The previous chapter was devoted to basic terminology related to mergers and acquisitions. It also introduced the primary motivations behind a strategic decision to acquire or merge with another company. I also discussed target selection and valuation and various other issues (e.g. accounting treatment), which shaped the M&A landscape in the late 1990's. In this chapter I will review academic literature, which appears quite unanimous in its scepticism towards corporate mergers and acquisitions. Strangely, this wealth of evidence has done very little to deter corporations from pursuing such transactions.

3.1 Stage 1: Synergies through financial engineering

The first wave of merger and acquisitions research built on the tenet that the performance improvements would materialize in the form of financial synergies (Maquieira et al. 1998). Among others, Levy and Sarnat (1970), Lewellen (1971), Williamson (1975), Amihud and Lew (1981) and Stapleton (1982) predicted that conglomerate or financial mergers between firms in non-overlapping businesses would yield the greatest benefits. Financial synergies were seen emerging from diversification as companies with imperfectly correlated cash flows joined forces, yielding a lower default risk. This in turn was deemed to improve the credit terms and lower the borrowing costs for the new entity. It was also suggested that stockholders would benefit from this diversification of equity risk, since they would not have to incur the costs of diversification personally. (Maquieira et al. 1998)

However, another school of academics argued that conglomerate mergers merely redistribute the wealth instead of creating it (Maquieira et al. 1998). Higgins and Schall (1975), Galai and Masulis (1976), Kim and Connell (1977) and Asquith and Kim (1982) suggest that the total value of the entity is unchanged after the merger but the relative values of debt and equity can be affected. Their results were inconclusive but Eger (1983) was able to document statistically significant wealth transfers between bond- and stockholders following conglomerate mergers. Later Shastri (1990) was able to show that these mergers can affect stock- and bondholders in a variety of ways, where wealth transfers can go either way, depending on the covariance of the merging firms' returns. (Maquieira et al. 1998)

3.2 Landmark: a survey by Jensen and Ruback (1983)

In their classic survey of empirical research conducted in the M&A-field, Jensen and Ruback (1983) summarize the results of 13 previous studies examining the effects of mergers and acquisitions on the acquiring firms. Six of the studies focused on mergers whereas the remaining seven studied successful tender offers. The evidence suggested that the bidding firms in tender offers seemed to earn abnormal returns (on average 4%). However, this result could not be proven statistically significant. In mergers, the bidding firms were found to systematically underperform (i.e. earn negative abnormal returns) the companies in the control group.

The results were most favorable in the studies where the 'event window' was restricted to the announcement period (generally –5 to +20 trading days before and after the acquisition or merger was announced). When the event window was expanded to +240 trading days (one year) after the announcement, as was the case in seven of the studies reviewed, the returns to acquiring firms deteriorated significantly (on average –5.5%). (Jensen and Ruback, 1983)

The survey by Jensen and Ruback (1983) had a profound effect on the magnitude of research conducted in M&A. It also established the performance of the bidder as the primary research objective and cemented the methodology to track the performance of the acquirer, both during the post-announcement period and in the long(er) run (Sirower, 1997). Initially, the survey inspired various followers, which compiled vast sets of data from hundreds and hundreds of mergers and acquisitions and employed the event study methodology (see chapter 5) to conclude whether mergers and acquisitions create or destroy shareholder value.

3.3 Holistic school of thought: Are mergers bad or even worse?

3.3.1 In the short run

Sirower (1997) has summarized the results of ten empirical studies documenting the "value-destructive effects of acquisitions to the shareholders of acquirers". Event window was restricted to the announcement period and the negative abnormal returns for acquiring companies range from –3.35% to –0.8%. On average only 35% of the merger announcements were met with positive return performance.

These results appear to contradict those reported by Jensen and Ruback (1983) where immediate returns were (insignificantly) positive for the acquirer. However, most of the studies quoted by Sirower (1997) focus on the M&As completed during the 1980's whereas the research cited by Jensen and Ruback (1983) draws from the 70's. To illustrate that M&A performance is getting worse, Sirower (1997) quotes four different studies indicating that returns to acquirers were in fact lower in the 80's than they were in the 70's (which were lower than bidder returns in 60's).

3.3.1 In the long run

When the event window is expanded, the results are not as clear-cut. Sirower (1997) lists three studies documenting a significant long-run underperformance for the acquiring firm. Table 1 below summarizes these studies.

Study	Event window	CAR	Sample period
Magenheim & Mueller (1988)	+3 years	-16%...-42%	
Ruback (1988)	+2 years	"Significantly negative"	
Agrawal, Jaffe & Mandelker (1992)	+5 years	-10%	1955-1987
		-19%	1980-1987

Table 3.1. Long-run abnormal returns to acquirers (Sirower, 1997)

However, not all the evidence is as condemning. Rau and Vermaelen (1998) cite three studies, namely those by Langetieg (1978), Bradley and Jarrell (1988) and Franks, Harris and Titman (1991), which do not find significant underperformance in the two-three year period after the acquisition. Moreover, Rau and Vermaelen (1998) themselves find statistically significant positive returns (9% on average) for the bidder in successful tender offers with a three-year event window. By contrast, acquirers in mergers underperform the control portfolio in their sample by a statistically significant 4%. Their sample period ranged from January 1981 until December 1991 and included 3169 mergers and 348 tender offers.

Prior to Rau and Vermaelen (1998), Loughran and Vijh (1997) had compared the long-term performance of the acquiring firm following either a merger or a tender offer. Their sample of 788 mergers and 135 tender offers yielded a positive 43.0% abnormal returns for bidders making tender offers and a negative 15.9% for companies initiating a merger. The event window was five years following the acquisition.

Franks et al. (1991), which did not find any significant bidding firm underperformance in two to three years following the acquisition, offer an explanation for the perceived

underperformance of the acquirers. The authors argue that findings of sub par performance are likely due to benchmark errors rather than "mispricing at the time of takeover". They point out that using a single value-weighted index (e.g. S&P 500) as a benchmark for 'normal performance' the predictions of the model are highly sensitive to the benchmark selected. Poorly chosen benchmark is inefficient, since it doesn't adjust for the risk properly (Ibid.). The authors add that incorrect adjustment is more severe for larger-than-average acquiring firms, resulting in estimates, which indicate negative abnormal returns even if the actual performance has been favorable.

To overcome the inefficiencies of research design with just a single index, Franks et al. (1991) employ four different portfolio benchmarks, including equally– and value–weighted indexes previously dominant in abnormal performance measurement. Using a sample of 399 acquisitions the authors conclude that the selection of benchmark does matter. The equally-weighted index generated a monthly abnormal performance of about –0.2% whereas the value-weighted index had an opposite sign and a magnitude of 0.3% per month. Other two benchmarks used (both multiple-portfolios) yielded results not significantly different from zero. The authors state that these multiple-portfolios provide the most efficient benchmark and since the post-acquisition abnormal performance is not significantly different from zero (when pitted against these multiple-portfolio benchmarks), the acquiring firms do not underperform in the long run, countering the conclusions of numerous earlier studies, including those cited by Sirower (1997).

3.4 Related vs. unrelated acquisitions

The research reviewed so far has not made a distinction between financial and strategic mergers. The studies reviewed by Jensen and Ruback (1983) treated all mergers as equals, without distinguishing the events in the sample according to the characteristics of the acquiring or the target company. However, various pieces of academic research acknowledging the difference between related and unrelated mergers and acquisitions started to surface towards the end of 1980's.

Maquieira et al. (1998) quote three earlier studies, which control for company- or industry-specific variables. Ravenscraft and Scherer (1987), Bhagat et al. (1990) and Kaplan and Weinbach (1992) each predict that operating synergies will be created only in mergers between companies operating in the same or related industry. However, the existence of operating synergies in related acquisitions is not a sufficient condition to conclude that

these acquisitions create shareholder value for the acquirer. Premium paid for the acquisition can exceed the maximum amount of operating synergies available, effectively classifying acquisition as a project with a negative net present value, since the full price of the acquisition is paid up front, whereas the cost savings and revenue enhancements through operating synergies are realized over time.

Healy et al. (1992) explore the issue further. They classify the acquisitions in their sample as high overlap, medium overlap or unrelated transactions, according to similarities in bidder and target lines of business. Their results indicate that high overlap transactions create positive abnormal returns during the two years following the acquisition. The estimate is statistically significant in their sample of 45 acquisitions completed between 1979–1984. However, since Healy et al. (1992) measure the success of a merger with post-acquisition pretax operating cash flows, this information is not useful in determining the direct effect on acquiring firm's shareholders.

The authors (Healy et al.) revisit the study in a more recent article published in 1997. In this revised version of the earlier article they authors conclude that on average acquisitions are break-even investments: additional cash flows created do not exceed the premium paid for the acquisition. However, in their sample of 50 acquisitions the profitability of individual transactions varied widely, which motivated the authors to explore the possible causes for this performance. Apart from the degree of business overlap between the target and the acquirer, Healy et al. (1997) propose two other candidates, namely the method of payment and the attitude of the target's management towards the bid, as identifying characteristics explaining either superior or inferior post-acquisition performance within the sample firms.

For the 14 strategic (high overlap) and 12 financial (unrelated) transactions in the sample, the results were as follows (Healy et al. 1997); premium-adjusted cash flow returns after the takeover were 2.7% for acquirers of highly overlapping targets and insignificant –0.6% for unrelated transactions. 12 out of 14 strategic acquisitions generated positive returns whereas less than half of the financial transactions achieved this. The authors cite greater achievable operating synergies and the acquirers' ability to exploit these synergies due to management expertise in the same line of business as possible reasons for superior performance of strategic vs. financial acquisitions.

The limited sample size and the design of the study (cash flows instead of stock returns as performance measures) restrict the generalization of results by Healy et al. (1997). However, Maquieira et al. (1998) came up with similar results with a sample of 260 mergers (pure stock-for-stock) initiated between 1963 and 1996. Their event window extends from t–2 months to t+2 months, where t signifies the announcement date. For assessing the abnormal returns they employ a methodology the authors call a *valuation prediction error* (VPE). This method creates a performance benchmark by observing the overall market movements in matching securities during the event period. The VPE estimate is computed by subtracting the predicted values from actual post-merger stock returns (hence the name *prediction error*). The VPEs (and corresponding t-statistics) estimated are summarized in the table 2 below.

	Number of observations	Mean VPE	Percent positive
Conglomerate mergers	135	**3.28%** (1.45)	56.3% (1.48)
Acquiring firms	47	**-4.79%** (-1.79)	36.2% (-1.97%**)
Target firms	47	41.65% (6.55*)	83.0% (6.02*)
Nonconglomerate mergers	125	**8.58%** (3.75*)	66.4% (3.88*)
Acquiring firms	55	**6.14%** (2.27*)	61.8% (1.80)
Target firms	55	38.08% (4.94*)	80.0% (5.56*)

* significant @ 99% confidence level
** significant @ 95% confidence level

Table 3.2. Abnormal returns for common stock in conglomerate and non-conglomerate stock-for-stock mergers over the period 1963–1996 (Maquieira et al. 1998)

It is evident from the sample that related (non-conglomerate) mergers result in higher overall gains (8.58%) than unrelated (conglomerate) transactions (3.28%). The difference in the observed abnormal returns is found statistically significant (Maquieira et al. 1998). However, the empirical results present an even more compelling case in the favor of related acquisitions when it comes to acquiring firm stock returns. Abnormal returns for the bidder are estimated to reach on average a positive 8.58% in related mergers whereas the figure is as low as –4.79% for the non-related mergers in the sample. Maquieira et al. (1998) conclude:

"These results strongly suggest that bidding firm stockholders benefit in non-conglomerate mergers, while bidding firm stockholders in conglomerate mergers are harmed."

The authors explain the difference in overall gains with a vague notion of 'operating synergies' created in non-conglomerate mergers as opposed to conglomerate transactions. To assess the distribution of bidder firm returns, the authors reclassify the mergers as either focus-preserving (non-conglomerate) or focus-decreasing (conglomerate) and quote the corporate focus hypothesis defined and used in Comment and Jarrell (1995), where focus-increasing transactions (reducing the lines of business through divestiture) are found to maximize the shareholder value. According to Maquieira et al. (1998), their empirical results offer strong evidence supporting this hypothesis.

3.5 Acquisitions within a single industry

The natural extension of Maquieira et al. (1998) is to explore related mergers in more detail by focusing on individual industries. Previous academic research has almost exclusively studied acquisitions across industry boundaries, due to better availability of data and the need to obtain results that apply universally. With sample sizes approaching 1,000 observations, spanning over two decades as in Loughran and Vijh (1997), I conclude that the 'holistic' side of the issue is exhaustively researched and there is little incremental contribution to be made.

By contrast, the literature assessing the bidder firm performance in related vs. unrelated mergers is still in its infancy. The article by Maquieira et al. (1998) is among the first to provide unambiguous evidence both for the superiority of related transactions as a whole and for positive abnormal returns also for acquiring firm's shareholders following non-conglomerate mergers. The empirical evidence is compelling and validates the assumption that significant operating synergies exist and can be exploited in properly executed mergers between related enterprises. Before the focus of this thesis shifts to the mergers and acquisitions in the telecommunications operator industry, I will review some of the research conducted in banking and airline industry consolidation. These industries share many characteristics with the operator industry, allowing me to treat them as benchmark industries and utilize selected aspects from the research design in my own empirical research.

3.6 Mergers and acquisitions among banking institutions

Consolidation in the banking industry has been widely researched, partly due to an abundance of data available. Most of the research relies on data from the US, where the

deregulation of the banking industry spurred an unprecedented number of mergers and acquisitions. Formerly restricted to operate only in certain market areas within state boundaries, new legislation initiated in early 80's allowed banks to pursue economies of scale by growing through acquisitions, albeit mostly within their home state (Berger and Humphrey, 1994). Between 1980 and 1990 more than 4700 mergers and acquisitions were completed between US banking institutions, representing more than $660 billion in acquired assets (Rhoades, 1996).

3.6.1 Economies of scale and scope drive banking industry consolidation

Economies of scale and scope would appear as logical drivers of consolidation in the banking industry. Scale economies exist when the average cost is a decreasing function of bank size. Economies of scale can arise from the elimination of overlapping functions in the combined branch network and from consolidation of the back-office and administrative functions. Also, combined larger asset base offers additional benefits in the form of increased diversification of bank's assets and liabilities, reducing the costs of risk management (Hughes et al., 1999). On the other hand, economies of scope occur when it is more cost-effective to produce two or more products jointly in a single entity than in two separate companies (Berger and Humphrey, 1994). Since the proportion of fixed costs in a bank's cost structure is significant, scope economies materialize when the fixed costs are spread over an expanded product mix.

Sushka and Bendeck (1988) argue that the customer relationship, the most valuable asset for any given bank, can also motivate consolidation in the banking industry. As the bank size increases, the number of customers and the assets in banks portfolio expand correspondingly. This implies a richer set of information about clients, hence lowering the marginal costs in risk assessment and credit approval. Under asymmetric information, this encourages those clients with most favorable risk-reward ratio to approach a large, informationally efficient bank, which can offer them more favorable credit terms.

3.6.2 Empirical research still inconclusive

Early academic research focused on intra-industry banking acquisitions by e.g. Desai and Stover (1985), Neely (1987) and Sushka and Bendeck (1988) produced somewhat conflicting results. While Desai and Stover (1985) detected a positive market reaction for the bidder following acquisition announcements in their sample of 18 acquisitions, Sushka

and Bendeck (1988) report negative, yet insignificant abnormal returns for the 39 bidders in their sample. Neely (1987) found the acquirer abnormal returns to be negative immediately following the announcement (significant at 95% level) with subsequent two-week performance of positive abnormal returns more than offsetting the initial underperformance.

However, once the samples used are classified according to the type of acquisition, the immediate share price response is shown to be a function of the acquisition type. Sushka and Bendeck (1988) classified the acquisitions in their sample according to the relationship between the acquirer and the target. The authors hypothesize that if the acquirer had a significant stake in the target bank prior to merger, the degree of uncertainty relating to merger benefits is lower than in those cases where the acquirer holds little or no shares in the target entity. The authors were able to find some support for this hypothesis, given that the acquiring banks that announced bids for non-related targets earned statistically significant negative abnormal returns. However, while the stock market reaction for related acquisitions was more favorable, acquirers did not earn statistically significantly abnormal returns in the sample studied by Sushka and Bendeck (1988).

3.6.3 Market power not significant while efficiency improvement is

James and Wier (1987) analyzed a sample of 60 bank acquisitions announced during the years 1972–83. To evaluate the sources of acquisition gains for the acquirer, the authors formulated two hypotheses. The first was called a 'specialized resources hypothesis', implying that any potential gains from the acquisition accrue from more efficient utilization of those assets unique to the target firm. Conversely, the 'market power hypothesis' states that the abnormal returns following the announcement are attributable to industry-wide effects, mainly due to increased market concentration.

The authors tested their first hypothesis by allowing for the existence of alternative bidders and targets. They were able to verify that the post-announcement abnormal returns for the bidder are positively related to the number of alternative targets and negatively related to the number of other potential bidders. This is hardly surprising and the more interesting part of James and Wier's (1987) article is devoted to examining whether the market power hypothesis could support abnormal returns for the acquiring banks. The authors measured the product market share of both the acquirer and the target and apply cross-sectional regression analysis to determine whether the market power hypothesis holds.

Disappointingly, the estimates of the relation between bidder returns and market share variables produced insignificant results, providing little support for the market power hypothesis.

Berger and Humphrey (1994) review several more recent studies focused on identifying the drivers for banking industry consolidation. The authors conclude that in most cases significant scale or scope economies fail to materialize as the size of the bank increases. Lack of scale economies is explained by a flattish U-shaped average cost curve observed in banking, which illustrates how the cost reductions achieved by small- and medium-sized banks are offset by corresponding increase in average cost when larger banks bulk up.

To help resolve the apparent paradox between the consolidation frenzy and the lack of obvious benefits resulting from the trend, Berger and Humphrey coined a concept called 'X-efficiencies' in their 1992 article "*Megamergers in banking and the use of cost efficiency as an antitrust defense*". An X-efficient bank, according to Berger and Humphrey (1994), produces its output bundle at a minimum cost taking into account the input prices it faces. They argue that mergers, where efficient (more profitable) banks acquire their more inefficient (less profitable) rivals, result in the elimination of 'X-inefficiencies', effectively creating additional value in the process.

The concept of X-inefficiencies, however superfluous the term itself appears, has been well received in the academic literature focused on bank consolidation. Berger and Humphrey (1994) review some of this literature and claim that the consensus estimate for X-inefficiencies is approximately 20% or higher for virtually all banks, regardless of their size. The authors themselves find strong empirical support for this level of X-inefficiencies. (Berger and Humphrey, 1994)

3.7 Mergers and acquisitions in the airline industry

Airline industry provides another benchmark. The similarities with the operator industry stem from the competitive structure of the industry as both the airline as well as the operator industry are monopolistic in nature. On national level, both industries have traditionally had a strong incumbent player, which has remained the market leader even if it has gradually lost market share to competitors. Deregulation has also played a major role in both industries as the limited number of players induces collusive pricing in the absence of regulatory constraints. Not surprisingly, the research conducted on airline consolidation has focused on competitive issues resulting from increased concentration in the industry.

Eckbo (1985) carried out a study, which attempted to measure the competitive effects of an intra-industry merger within the airline industry. He makes a vital contribution to the merger literature by acknowledging that performance improvements following mergers between direct competitors in a certain industry should be decomposed into benefits arising from operating synergies and effects attributable to increased market power for the new entity. His work was geared towards establishing solid proof for anti-competitive nature of related mergers, arising from increased market concentration and subsequent increases in product prices. According to Eckbo's (1985) hypothesis, the announcement of an intra-industry merger should result in improved rival-firm performance, since the rivals will also benefit from increased concentration within the industry. However, Eckbo's results were inconclusive and he was forced to reject his initial proposition.

Kim and Singal (1993) and later Singal (1996) picked up where Eckbo (1985) had left. The author(s) analyze the effects of 19 mergers initiated between 1985–1988. Emphasis of the study is on determining the impact of merger activity on rival-firm performance. However, both the bidder and the target firm stock returns are measured along with rival-firm performance. The evidence is used to predict how synergistic gains and increased market power are distributed among the industry players. Even with their limited sample, the model generates estimates for significant positive cumulative abnormal returns for the bidder. However, the authors fail to comment whether the performance improvement results from operating synergies or enhanced market power of the new entity.

To facilitate the analysis of external effects, rival firms are classified as rivals of the acquirer and rivals of the target (Singal, 1996). Abnormal returns for the acquirer's rivals hover around zero but for the target's rivals these returns are significantly positive (on average 1.85% for the two-day window) (Ibid.). This implies that target firm's rivals benefit from increased concentration and market power. Using the actual product price data collected for the respective routes, Singal (1996) validates the assumption by observing a statistically significant increase of 3.85% in the profitability of the routes operated by target firm and its rivals.

3.8 Conclusions

My objective with the literature review has been to provide enough empirical evidence to support my hypothesis that an acquisition can be a value-adding alternative for bidding firm and its shareholders. Being far from exhaustive, it also offers a brief narrative

regarding the major trends in M&A research over the past two decades. Since it was necessary to concentrate on the issues most relevant to my own proposed research framework, I have focused on strategic acquisitions. Numerous studies quoted identified alternative factors explaining differences in merger performance. Method of payment, relative size of the target, accounting methods employed and the premium paid were among the explanatory variables offered as alternatives for the degree of business overlap emphasized here. I will explore some of these characteristics in more detail as part of my empirical research (chapters 5 and 6).

4 Operator industry

4.1 Introduction

The frantic pace of M&A-transactions in telecom has made it the most valuable industry measured with the market value of deals completed (McGoldrick, 1998). In 1999, the dollar value of mergers and acquisitions in the telecommunications industry reached $266 billion in the US alone (Pitofsky, 1999). Throw in the $130 billion merger between Vodafone and Mannesmann and it becomes increasingly obvious that these transactions are potentially either creating or destroying more shareholder value in the process than any other industry.

A patent explanation for increased consolidation within the operator industry is to proclaim the M&A–activity as a vehicle for geographical extension of existing services or as a means for diversifying the product and service portfolio (Orgram, 1999). In his sample of 60 mergers and acquisitions observed in telecom operator industry in 1998 alone, Orgram (1999) reports that geographical extension dominated (66%) over service diversification (33%) as the primary reason for acquisitions. He sees the former strategy as an attempt to gain economies of scale by spreading the high fixed-cost infrastructure across a larger customer base. In the latter, the acquiring company has chosen acquisition against the time-consuming alternative of developing the skills and services by themselves (Orgram, 1999).

As mentioned earlier, I see obvious parallels between the banking industry and the operator industry when it comes to optimal size for a company and the structure of the overall industry, both within one country as well as across national borders. Accordingly, as was done with my review of the banking industry consolidation, I will discuss the different shapes and sizes of scale and scope economies in the operator industry and how these are seen driving the consolidation process. Moreover, I will identify additional, industry-specific reasons, which are shaping the way communications services will be offered to subscribers in the future. My objective with this analysis is to identify the proposed drivers for consolidation, so that we can formulate the hypotheses to test whether these reasons have led to sensible transactions.

4.2 Regulatory drivers for consolidation – case USA

As was the case in the banking industry, deregulation has played a major role in operator industry consolidation. In the United States, the transition from a monopolistic industry structure to a competitive marketplace has been relatively rapid and was greatly affected by two landmark initiatives enforced by the regulator.

For most of the twentieth century, the telecommunications industry in the United States was a regulated monopoly. However, from the late 1960s, the Antitrust Division of the US Justice Department started advocating the introduction of competition into long-distance telephone service. In 1974, the Justice Department took concrete action and filed a case against the monopoly operator AT&T, seeking to permit long-distance competition. This case was resolved in 1982, when the breakup of AT&T was ordered. As a result, competition in the long-distance telephony flourished. (Bell System Memorial)

By the mid-1990s, lower prices and rapid innovation in long-distance telephony prompted the US policy makers to seek more extensive competition in the domestic telecommunications industry. This effort culminated in the Telecommunications Act of 1996, which eliminated restrictions on competition in local telephone service and established a national policy favoring competition and deregulation in all telecommunications markets.

In effect, the Telecommunications Act of 1996 eliminated the remaining monopoly of local telecommunications services controlled by the so-called RBOCs (Regional Bell Operating Companies) and other incumbent local operators. These efforts have led to substantial entry by competitive local exchange carriers (CLECs). Using their own communications infrastructure or a combination of their own infrastructure with elements of the RBOCs' networks, these CLECs are providing local telecommunications services to an increasing number of customers. CLECs have achieved local market shares approximating 10 percent in some states.

In hindsight, the deregulation in the US has been a phenomenal success and a complete failure. Granted, consumers have benefited from increased competition in the form of lower prices and better availability of competing services. However, after an initial growth in the number of communications service providers, intra-industry mergers and numerous bankruptcies have greatly reduced the number of competitors in the marketplace. For example, of the seven original RBOCs in 1996, only four have survived until today. In

fact, with the exception of long-distance telephony and wireless services, both of which are nation-wide in nature, a true competition in communications services seems actually to have decreased lately. Local telephone companies have successfully defended their home turf by zealously guarding their most valuable asset, connections to private homes.

4.3 Scale economies as drivers for consolidation

As defined earlier, scale economies arise when the average cost is a decreasing function of the company size. In the case of a communications service provider, the most pertinent measure of the company size is the number of subscribers it has. By and large, an operator needs the same infrastructure whether it has one or one million subscribers using its network. Obviously, this is a very simplistic assumption and does not take into account e.g. additional capacity needs arising from multiple users accessing the network simultaneously. However, it is accurate enough to serve as an intuitive indicator of the magnitude of scale economies in the telecommunications industry.

Consequently, the largest scale economies arise from more efficient use of network resources and related back-office infrastructure. Operator industry is very capital-intensive and few percentage point difference in the ratio between capital expenditure and revenue has a significant effect on operator's cash flow and return on invested capital (ROIC). By adding subscribers to its network through an acquisition, an operator can put its network infrastructure into a more efficient use, lowering the ratio of capital expenditures to sales, boosting both cash flow as well as return on invested capital.

Few caveats are warranted. First of all, post-acquisition capital expenditures should not be compared with historical levels since the subsequent period following the most frantic acquisition phase, namely the years 1999-2001, was characterised by exceptional growth rates and (excessive) investments into the telecommunications infrastructure. Second, it should be noted that many of the recent mergers and acquisitions, especially among mobile operators, were motivated by a desire to expand geographically. Instead of applying for an operating license in a foreign market (which is not even a viable option in most cases) and building up the network and a customer base from the scratch, ambitious operators chose to acquire an existing operator in the geographic market they wished to enter. With no overlap in infrastructure or customer base, the achievable scale economies are obviously smaller than in the case where an operator acquires a direct rival.

4.4 Scope economies as drivers for consolidation

Scope economies are achieved when it is more cost-effective to produce two or more products jointly in a single entity than in two separate companies (Berger and Humphrey, 1994). The telecommunications operator industry, characterized by high degree of fixed costs relative to variable costs, is obviously prone to significant economies of scope. Moreover, as service providers are increasingly expanding their product portfolios with various value-added services, scale becomes even more important. Value-added or non-voice services are basically software products and as such have higher fixed-to-variable cost ratio as simple voice services. Software-based services are costly to develop in the first place but virtually free to distribute. Thus, adding new subscribers provides the operator with substantial leverage for improved profitability.

Experiences from banking industry consolidation apply to certain extent also in the telecom operator industry. The tendency to grow through acquisitions is particularly pronounced in both industries since they are both based on acquiring and cultivating customer relationships. Building the customer base from the scratch is costly and can take a long time, especially in mature industries, so instead it often makes sense to acquire existing customer relationships. Next, we will explore how the value in customer relationships can also motivate growth through acquisitions.

4.5 Network effects as drivers for consolidation

As described earlier, Sushka and Bendeck (1988) argue that a bank, when acquiring another bank, is primarily motivated by a desire to add more customers. More customers imply richer set of information concerning the customer base, lowering the costs associated with risk assessment and credit approval. I argue that a large customer base has similar intrinsic value in telecommunications as well, beyond the favorable scale and scope effects described above. This value is derived from a concept called 'network effects'.

Network effects arise when the consumer utility of a given product increases as a function of the number of other consumers who use a compatible product or service. A telephone provides the standard example. The higher the amount of people that own a telephone, the more valuable the telephone is to you. In other words, the value of network access to an individual depends positively upon the number of other individuals accessing the same network. (E.g. Shapiro and Varian, 1998)

Network effects (e) are often quantified with Metcalfe's law:

$e = n(n-1)$, where

n = number of people accessing e.g. the telephone network

Hence, if there is only one telephone in the world, its value is zero. However, as the number of telephones grows, the value for a user grows exponentially.

For an operator, Metcalfe's law has powerful implications. If an operator can create network externalities for its customers, either through pricing or exclusive services, the subscriber's utility becomes a positive function of the overall subscriber base, enabling the operator to extract higher revenue per subscriber as the subscriber base grows. This is obviously a strong incentive to accelerate organic growth through acquisitions.

Moreover, network externalities have a tendency to escalate and lead into a phenomenon called a tipping effect. This states that once a critical mass is achieved in an industry susceptible to strong network externalities, a monopolistic structure becomes inevitable. For example, if a mobile operator reaches a high enough market share and is perceived to offer attractive network externalities to its subscribers (e.g. in the form of lower prices for voice calls within its own network), it will end up as a monopoly operator as competitors' customers will eventually switch to the network which offers them higher utility. Granted, regulatory authorities are well aware of this phenomenon and will try to stimulate enough competition on the national level to make sure that the tipping point is not reached.

It is difficult to quantify the impact of network economies. One could try to measure whether larger operators have higher ARPUs (Average Revenue Per User). However, ARPU is also a function of disposable income, composition of the customer base (pre-paid vs. post-paid, consumer vs. corporate) and numerous other variables. Therefore an empirical research of network economies is beyond the scope of this study but is undeniably one of the most interesting topics for further research.

4.7 Fixed vs. wireless acquisitions

Late 1990s were characterized by an unprecedented shift to mobile communications, partly at the expense of traditional wireline telecommunications. The ability to stay connected while on the move evolved from a luxury to a necessity. Moreover, some emerging markets have chosen to forgo fixed telecommunications infrastructure altogether and

instead have opted for a cellular approach in the provision of communications services. While the most explosive growth phase is coming to an end as the law of large numbers works to compress the achievable growth rates, mobility is here to stay and will exhibit above GDP-level growth rates also in the future.

My hypothesis is that the anticipated growth rates will drive consolidation in the industry. As has been argued previously, an acquisition is the fastest way of entering a new market. In a high-growth industry of mobile communications, those companies, which have accelerated their growth through acquisitions, are postulated to generate excess returns for their shareholders. Falling behind on the growth curve would be the cardinal sin.

The exact opposite applies for the wireline service providers. Attainable growth rates are slow due to high penetration rates in mature markets. Moreover, mobile telephony is increasingly cannibalizing the usage of fixed voice services, further suppressing future growth opportunities. Consequently, the local and long-distance exchange operator business has become the business of cash flow maximization. New investments are scaled back and the focus is on the operational efficiency of existing lines of business.

Hence the argument is that wireless acquisitions generate higher abnormal returns to shareholders compared to wireline acquisitions. Besides the differences in available growth opportunities, I argue that network effects are more potent in mobile communications. A mobile operator has more discretion in the pricing and provisioning of different services, i.e. an operator is expected to provide favorable terms to its own customers and extract higher economic rent from competitor's subscribers. In fixed telephony this is often not possible as fixed telephony is about universal access to basic voice services, making granular approach to pricing impossible.

4.8 Conclusions

This chapter has attempted to bridge the literature review with the characteristics observed in the telecommunications operator industry. I argued that in terms of scale and scope economies achievable, the operator industry resembles the banking industry, enabling us to draw upon the research conducted on the banking industry consolidation. However, strong propensity for network effects sets the operator industry apart from the banking industry, adding a unique dimension to explore.

5 Data and methodology

Over 20 years of rigorous M&A–research has created a solid methodology for assessing the post-acquisition performance of a merger. Of the different event study methodologies discussed in the literature review, I elected to explore the short-term market reaction following the acquisition announcements. Observing the initial market reaction provides a valid test whether investors think that the merger makes good business sense and whether the price paid was acceptable. Capital markets are assumed to be efficient and the implications of an acquisition are correctly valued and reflected in the share price after the announcement.

5.1 Hypotheses

As I argued earlier, the potential for value creation through consolidation in the operator industry is high. High ratio of fixed vs. variable costs, propensity for strong network effects and enhanced cross-selling opportunities offer persuasive support for substantial cost and revenue synergy potential. However, recent acquisitions have commanded significant premiums over and above the market capitalization of the target companies, making it harder for the acquirer to earn required rate of return for this investment. The ultimate objective of my empirical research is to determine whether these investments are justified.

5.1.1 H1: Total abnormal returns are positive

My first hypothesis argues that strategic acquisitions initiated by telecom operators are value-adding in total. The total value-weighted post-announcement returns are expected to be higher than the average returns in the industry. If this is indeed the case, then the recent consolidation trend should be perceived as a value-enhancing strategy for the combined entity.

5.1.2 H2: Abnormal returns are positive for both acquirer and the target

However, the value gains are unlikely to be distributed equally between the participants. My second hypothesis posits that a majority of transaction-related short-term gains will accrue to target party shareholders, while the acquirer's shareholders will experience lower but statistically significant positive abnormal returns. The former outcome is hardly

surprising since it has been documented in virtually every empirical study conducted on post-acquisition performance of the target and the bidder. The latter prediction of statistically significant positive abnormal returns for the bidder, if confirmed empirically, would go against the grain of the conventional wisdom in M&A literature, which anticipates subzero or at best break-even abnormal returns for the acquirer.

The approach taken so far does not discriminate between observations according to their relative size. This is somewhat misleading since it assigns the same importance for a certain level of observed abnormal returns, regardless of the market capitalization on top of which these abnormal returns are earned. To add more perspective, I will control the differences in relative sizes by assigning a weight for the acquirer (target), based on its pre-announcement market capitalization relative to the total market value of acquirers (targets) in the sample. Individual cumulative abnormal returns are adjusted with this weight and the average returns are computed as the sum of the individual value-weighted returns.

5.2 Cross-sectional variation

The purpose of the first two hypotheses was to explore whether the acquisitions yielded abnormal returns for the bidder and the target. Next, I will identify certain characteristics in the transactions and see whether some common denominators of successful acquisitions can be found. For example, information pertaining to acquisition valuation is used to see whether a high premium is inversely related to post-acquisition performance of the bidder. Also, I have used the framework borrowed from Palepu's (1986) and identified various target characteristics, which are expected to create cross-sectional variation between the events in my sample. Lastly, I have explored bidder and transaction characteristics to see whether certain acquisitions seem to make more sense than the others.

5.2.1 H3: acquisition premium and abnormal returns for the bidder are inversely related

As the first cross-sectional variable I will study the correlation between the size of the premium and the subsequent returns for both the bidder and the target. A high premium sets a higher hurdle rate for making a merger a positive NPV investment and implies challenging synergy expectations. An intuitive assumption is that market response for bidding firm's share price is inversely related with the size of the premium.

5.2.2 H4: relative size of the target and bidder returns are inversely related

After the relationship between the absolute premium percentage and post-announcement return performance is evaluated, a logical next step analyzes the effects of relative premiums paid. In this section I will use the Value At Risk-approach as described in section 2.5.3. The higher the purchase price relative to bidder's market capitalization value, the larger proportion of the acquiring company market value is put at risk. Consequently, the market is anticipated to discount these transactions with a higher cost of capital, leading to lower expected post-announcement returns.

5.2.3 H5: bidder returns are higher in acquisitions compared to mergers

Common consensus in the existing merger literature states that acquisition announcements are met with a more positive stock market reaction than merger announcements. This is partly due to the fact that acquisitions are more often cash-financed whereas mergers tend to be stock-for-stock transactions, which have been found to underperform cash-based transactions in virtually every academic study conducted. Also, merger participants tend to be of more equal size than bidder and target in typical acquisitions, suggesting that this hypothesis is linked to the size hypothesis discussed above.

After these transaction characteristics have been analyzed, I will integrate targets' operational performance into the equation. As was discussed in literature review, various parameters have been suggested as the key decision variables in the target selection process. Building on previous research, I have elected to analyze the effects of following operational metrics of the target: Return on equity (ROE), market-to-book ratio and the operating margin.

5.2.4 H6: Low target return on equity (ROE) implies higher abnormal returns

I use return on equity to indicate managerial effectiveness. I have previously cited Palepu (1986) who failed to detect the expected inverse relationship between abnormal returns and return on equity. However, I argue that in the telecommunications industry the potential for ROE improvement is greater than in a less capital-intensive industries. Highly capitalized operators have high levels of equity, raising the bar for generating satisfactory return on that equity. In other words, low ROE is not only an indication of managerial ineffectiveness but also a sign of suboptimal use of capital invested. Accordingly, I

hypothetize that the lower the ROE of the target, the higher the abnormal returns following the transaction.

5.2.5 H7: Low target market-to-book ratio implies higher abnormal returns

It was suggested in the literature review that the relationship between Tobin's q (market value/replacement value of assets) and abnormal returns has been confirmed statistically in various studies. Intuitively, this should be the case for capital-intensive operators as well. For the lack of necessary inputs to calculate Tobin's q, I will use market-to-book ratio instead. Despite the fact that book values of assets do not necessarily reflect their true replacement value, the approximation should be good enough. Consequently, I argue that a low market-to-book ratio for the target should lead to higher abnormal returns for the bidder.

5.2.6 H8: Low target operating margin implies higher abnormal returns

Finally, I will use the operating margin to reflect the available opportunities for scope economies. The lower the margin, the more potential there is for margin improvement through cross-selling, joint service development and larger customer base. Analogous to Berger and Humphrey's (1994) 'X-inefficiencies' in the banking industry, efficiency improvements are attainable in the telecommunications as well when less profitable operators are acquired by their more profitable rivals. Hence the operating margin of the target and the abnormal returns for the bidder should be inversely related. Also, while it may appear that a target company ROE (H5) and its operating margin (H7) … vis-à-vis other observations in the sample, I argue the the inclusion of both is warranted. First, ROE takes the capital required into consideration, which is beneficial in my sample that includes a wide variety of target companies with less-than-uniform capital structures. Similarly, as explained above, the operating margin serves as a proxy for achievable synergies subsequent to the acquisition.

5.2.7 H9: focus-preserving acquisitions outperform focus-decreasing transactions

To extract more in-sample information regarding the variation in stock market approval for acquisition events studied, I will categorize the sample into *focus-preserving* and *focus-decreasing* transactions. Focus-preserving transactions are defined as extensions of the existing business through horizontal expansion either in the home market or abroad

whereas focus-decreasing acquisitions involve adding new products or services into the acquirer's product portfolio. The latter involves more explicit and implicit integration-related costs, hence the argument goes that focus-preserving transactions generate a more favorable response from the stock market. This hypothesis is in line with the empirical evidence offered by Maquieira et al. (1998) and Comment and Jarrell (1995).

5.2.8 H10: wireless mergers outperform wireline mergers

I have argued before that wireless acquisitions generate higher abnormal returns to shareholders than the wireline acquisitions. Opportunities for more rapid growth, coupled with strong propensity for network externalities provide a favorable backdrop for acquisitions to be value-adding for the bidding firm shareholders. Consequently, the hypothesis to be tested empirically is that wireless acquirers should outperform their fixed peers.

5.3 Sample description

An event is defined as the announcement of a merger or an acquisition, where the acquirer is a telecommunications operator. The announcements occurred between 1994-2000 with majority of events taking place during 1998 and 1999. Since the primary emphasis of my research is to determine whether growth through acquisitions is value-adding for the acquirer, I have limited my sample to contain only strategic acquisitions. Strategic acquisitions involve two parties engaged in comparable operations within a specific industry, either as direct competitors in a certain market (horizontal acquisition) or as peer companies operating in the same market layer in different markets (geographical extension) or entities operating at different layers in the same market (vertical acquisition or service diversification). To ensure the relevance of each event, I have limited my sample to contain only the most significant transactions.

Empirical data was gathered from several sources. The initial sample was based on query using the SDC database. The accuracy of this preliminary data was cross-checked with the information available in Bloomberg's Mergers and Acquisitions database. This same database provided the announcement dates and transaction values for each acquisition. To examine the primary line of business for each target, I relied on Bloomberg's company descriptions. To guarantee that each event was significant enough to cause a market response, I imposed a minimum level of US 500 million for the total deal value below

which the transaction was excluded from the sample. Further on, acquisitions of minority stakes (<40% of the total equity capital) and joint ventures were excluded from the sample, since they do not involve a change in control. Necessary share price data for each company was gathered from Bloomberg.

The final sample consists of 56 merger and acquisition announcements that meet the above criteria. Eight events were excluded since the proposed merger fell through before its completion, either due to external regulatory reasons or company-specific internal obstacles. I acknowledge that this introduces some bias into the sample as these announcements were most likely met with a higher level of scepticism, due to investors' assessment that companies involved are misallocating their resources on a transaction with a low likelihood of ever being completed. Given that the stock market is able to predict, at least partially, this eventual outcome, is seen undermining the comparability of these events with the rest of the sample. This is a subjective decision but hardly uncommon in the merger literature. For example, Maquieira et al. (1998) excluded ten events with multiple bidders from their sample. One could argue that this introduces positive bias to their empirical study of bidder returns, given that the existence of multiple bidders tends to contribute to a higher acquisition premium.

5.4 Constructing a benchmark

In order to estimate abnormal returns in the sample, a definition for normal returns is needed. Thus, a *market model* is used to construct a benchmark index for approximating normal returns.

A market model assumes a linear relationship between the return of any security to the return of the market portfolio:

(5.1) $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$,where

$E(\varepsilon_{it}) = 0$ *and* $Var(\varepsilon_{it}) = \sigma^2_e$

Given that my sample consists of telecom operators, an appropriate benchmark index R_{mt} should consist of publicly traded companies in the same industry. For European operators I have used the Dow Jones Europe Telecommunications index (SXKP). For Vodafone, which represents some 35% of the whole SXKP index, and the US-based operators I have used either the Nasdaq Telecommunications index (CUTL) or a combination of Standard & Poor's Long-distance (SPTELC) and Telephone Operators (SPTELP) indices.

Equation 5.1 is generally estimated over a period, which runs between 120 and 240 days prior to the event up to 10 days prior to the event. It assumes that no information leakage regarding the event has occurred during this estimation period. I elected to estimate the market model during the period, which ends 20 trading days prior to the announcement and comprises a total of 120 trading days. In the cases where the acquirer has made two or more acquisitions in such a short period that this estimation window is affected by a prior acquisition, a normal performance estimate preceding the first acquisition is used.

With the estimates of α_i and β_i derived from equation 5.1, one can use the market model for estimating normal returns during the event window. The prediction error, the difference between actual returns and predicted normal returns, is then calculated as:

$$(5.2) \quad AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt}$$

The prediction error AR_{it} should be interpreted as the best estimate for abnormal returns. For the sake of simplicity, I have assumed the coefficient α_i to be zero.

In order to test for the persistence of the impact of the event during a period ranging from t_1 to t_2, the individual abnormal returns can be added to obtain the cumulative abnormal returns for security over the period.

$$(5.3) \quad CAR_i(t_1, t_2) = \sum AR_{it}$$

I chose to estimate the abnormal returns over eight different event windows during a 41-trading day period around the announcement date. First event window covers the whole 41-trading day period (-20,+20) and is assumed to contain the pre-announcement run-up in the share price as well as the stock market verdict after the announcement. Second period (-20,-1) aims to determine the relative importance of the run-up effect preceding the announcement whereas the next three (-1,+1;0 and –3,+3) are different approaches for isolating the actual announcement effect. The last three (-1,+5;+1,+10 and +11,+20) aspire partly to investigate market efficiency, since the efficient market theory states that all of the announcement impact is priced in immediately after the announcement, indicating a rapid convergence back to normal level of returns.

5.5 Extracting cross-sectional variation

As I discussed earlier, I have selected various characteristics of the transaction to explore whether successful transactions share some common characteristics. To investigate

whether my cross-sectional hypotheses hold, I have employed cross-sectional regression of abnormal returns. The model is set up as follows:

(5.4) $AR_{it} = \theta_i X_{it} + \eta_{it}$, where

the X_{it} is the value of selected cross-sectional variable at time t, θ_i the estimated coefficient defining the relationship between the variable X_{it} and abnormal returns AR_{it} and η_{it} is the disturbance factor with an expected value of zero (Campbell et al. 1997).

6 Empirical results

6.1 Total abnormal returns in the sample

Table 6.1 presents the cumulative average abnormal returns for both the bidder and the target as well the total value for the combination of these two. Results are not surprising, albeit somewhat disappointing: business combinations as a whole are deemed value-adding with the value distribution clearly favoring the target, to such extent that the abnormal return for the acquirer are either negative or zero after the announcement. However, since the cumulative abnormal returns for the acquirer are clearly above zero during the 20-day period prior to the announcement, cumulative abnormal returns for the acquirer over the whole 40-day event window before and after the announcement are mildly positive.

	-20,+20	-20,-1	-1+1	0	-3,+1	-1,+5	+1,+10	+1,+20
Bidder	0.65%	1.96%	-1.30%**	-1.15%**	-0.93%**	-2.10%**	-0.61%*	-0.27%
t-stat	-0.36	1.12	-4.51	-5.28	-2.56	-3.84	-1.61	1.00
Target	23.56%**	11.24%**	14.45%**	11.32%**	17.94%**	13.73%**	0.36%	1.24%
t-stat	10.48	6.61	25.31	34.12	20.08	16.06	0.67	1.12
Total	3.13%*	2.91%**	0.84%*	1.00%**	1.63%*	0.04%	-1.19%	0.62%
t-stat	1.32	1.76	1.31	2.70	1.66	0.08	-1.02	0.53

*** Statistically significant at 95% level*

** Statistically significant at 90% level*

Table 6.1. Cumulative average abnormal returns for 56 bidders and 43 targets.

Analysis of Table 6.1 reveals that the bidding firm shareholders enjoy positive abnormal returns (+1.96%) prior to the announcement. This observation, which could not be confirmed to be statistically significant, suggests that on average investors have responded mildly favorably to speculations surrounding the event, before any specifics have been announced. However, once the terms of the transaction are revealed, the average market reaction has been slightly negative (-1.15%). Negative response is at its strongest (-2.10%) during the event window starting one day prior to the announcement and ending five days after the event. However, after the initial 'shock', the performance of the acquirer converges rapidly back to the estimated level of normal returns, as can be seen from the diminishing rate of cumulative negative abnormal returns when the post-announcement event-window is extended to cover up to 20 days after the event.

As expected, the target firm shareholders benefit substantially during the observation period. Prior to the announcement, the interest expressed by the bidder(s) boosts the share price of the target, in this case by an average of +11.24%. Once the acquisition premium is revealed at the announcement date, another +11.32% is added to cumulative abnormal returns accruing to target. After this the share price performance of the target drops rapidly back to a normal level, as the last two columns in Table 6.1 indicate. However, it is to be noted that the post-announcement market value of the target rarely reaches the declared acquisition price, reflecting the uncertainty among investors whether the transaction is finally completed or not.

In my sample of 40 merger and acquisition announcements where both the acquirer and target market value preceding the announcement could be determined, the acquirer's market capitalization exceeded target in 38 cases. Hence the total abnormal returns are dominated by the acquirer performance around the announcement date. Third row in Table 6.1 above shows that once the relative market valuations are factored into abnormal return estimates, a clearer distinction emerges between the periods before and after the announcement. The 20-day interval preceding the announcement produces strictly positive abnormal returns, which taper off and turn mildly negative immediately after the announcement. The combined performance improves towards the end of the event window, offsetting the losses incurred during the first ten days following the event. This improvement ensures that the total returns over the whole 40-trading day event window are positive at 3.13% (at 90% confidence interval).

6.2 Value-weighted abnormal returns

In the above the cumulative abnormal returns were calculated as the simple average of individual events' performance in the sample. This is somewhat misleading, since it assigns the same importance for a certain level of observed abnormal returns, regardless of the market capitalization. To add more perspective, I have assigned a weight for the acquirer (target), based on its pre-announcement market capitalization relative to the total market value of the acquirers (targets) in the sample. Individual cumulative abnormal returns are adjusted with this weight and the average returns are computed as the sum of the individual value-weighted returns.

	-20,+20	-20,-1	-1,+1	0	-3,+3	-1,+5	+1,+10	+11,+20
Bidder	-3.64%*	-1.17%	-1.88%**	-1.92%**	-2.53%**	-2.82%**	0.16%	-0.69%
t-stat	-1.47	-0.68	-2.82	-4.99	-2.49	-2.77	0.13	-0.56
Target	3.65%*	0.45%	7.07%**	5.35%**	7.79%**	4.64%**	-0.51%	-0.72%
t-stat	1.61	0.28	11.50	15.09	8.30	4.94	-0.46	-0.65
Total	-2.14%	-0.84%	-0.04%	-0.43%	-0.41%	-1.29%*	0.02%	-0.69%
t-stat	-0.90	-0.51	-0.06	-1.16	-0.42	-1.32	0.02	-0.59

*** Statistically significant at 95% level*

** Statistically significant at 90% level*

Table 6.2. Value-adjusted returns for 56 bidders and 37 targets

Analysis of the value-weighted returns reveals that larger acquirers tend to underperform their smaller counterparts, leading to more prominent negative abnormal returns observed in the sample. Even the event window leading to the announcement (-20,+1) exhibits negative (-1.17%) abnormal returns while the non-adjusted returns were clearly above zero. Value-adjusted underperformance continues beyond the announcement date, gradually tapering off after day +5, adding 2 percentage points to cumulative underperformance, bringing the total underperformance over the whole 40-day event window to –3.64%. This result offers further evidence to counter my hypothesis, which claimed that acquisitions are value-adding for both parties of the transaction.

As expected, abnormal returns for the target remain strictly positive after adjusting for relative value. Value-weighted returns are more moderate than absolute average returns but remain strictly positive during and directly after the announcement. A single notable exception is the period preceding the announcement, where the cumulative abnormal returns are no longer significantly different from zero.

The apparent negative relationship between the firm size and abnormal returns performance drives the combined returns to or below zero during the whole 40-day event window. Despite the strong target return performance surrounding the announcement date, the underperformace of acquirers drags the total returns into negative territory. However, these results are generally not statistically different from zero. Nevertheless, it becomes increasingly clear that the shareholders of the target company have been sole beneficiaries in the acquisitions in my sample. Next, I will turn to cross-sectional analysis of the sample events to uncover any systematic factors explaining the in-sample variation of cumulative abnormal returns.

6.3 Cross-sectional analysis of abnormal returns

6.3.1 Implications of transaction characteristics

The size of the premium, measured as the difference between the acquisition price and the market value of the target prior to the merger or acquisition announcement, is an intuitive explanatory variable to explain the cross-sectional variation within the sample.

Table 6.3 reports the estimated coefficients for the relationship between the abnormal returns and the percentage premium paid in each of the eight event windows. Statistical significance is determined with the respective P-values included in the table.

Expected sign			-20,+20	-20,-1	-1,+1	0	-3,+3	-1,+5	+1,+10	+11,+20
Premium	negative	mean	-0.01%	3.11%	-5.77%**	-2.47%*	-6.18%**	-7.50%**	-2.15%	1.50%
n=40		p-value	0.997	0.270	0.003	0.080	0.005	0.000	0.103	0.419
		R^2	-0.001	0.002	0.091	-0.034	0.108	0.155	-0.032	0.001

*** Statistically significant at 95% level*

** Statistically significant at 90% level*

Table 6.3. Relationship between bidder abnormal returns and the acquisition premium

Not surprisingly, the empirical results confirm the proposed theoretical hypothesis. In each of the four event windows (-1,+1; 0; -3,+3 and –1,+5), which include the announcement date, this strictly negative relationship is confirmed statistically. At the announcement date the observed statistical significance holds at 90% level whereas the negative relationship observed during the three other inclusive event windows holds at the 99% level. Intuitively, prior to the announcement the acquisition premium is not known and it does not affect the abnormal returns for the bidder. Correspondingly, the strong negative relationship observed around the announcement diminishes gradually with practically no effect observed ten days after the announcement.

Previous analysis confirms the intuitive proposition that overly optimistic synergy expectations implied by a high premium percentage are perceived as a negative signal by the capital markets. Markets do not believe that these synergies will be achieved and punish the acquirer for paying too much. To explore the issue of risk further, I have divided the target market capitalisation with the acquirer's market cap to construct a market value ratio as the next explanatory variable to investigate. The higher the ratio, the more of the acquiring company's value is put at risk in the acquisition process.

Table 6.4 displays the results when estimated abnormal returns are regressed against the market value ratios. As expected, the negative relationship is observed and confirmed to be statistically significant around the announcement date.

Expected sign		-20,+20	-20,-1	-1,+1	0	-3,+3	-1,+5	+1,+10	+11,+20
Relative size negative	mean	-2.82%	3.34%	-6.15%**	-5.56%**	-5.34%*	-6.97%**	-3.07*	2.48%
n=40	p-value	0.624	0.380	0.021	0.002	0.081	0.015	0.082	0.321
	R^2	0.005	-0.010	0.006	0.122	-0.009	-0.033	-0.022	0.008

*** Statistically significant at 95% level*

** Statistically significant at 90% level*

Table 6.4. Relationship between the market value ratio and abnormal returns

Finally, my fifth hypothesis stated that bidder returns are higher when an acquisition is announced vis-à-vis a merger announcement. However, as seen in Table 6.5, I could only find statistical support for this hypothesis in the event window, which includes the first ten days following the acquisition. One could argue that the chosen transaction mode is not known prior to the announcement, implying that investors lack the necessary tools to make an informed assessment of the expected transaction mode. Then, as the terms of the transaction are announced, other factors such as the proposed premium dominate investors' attention and lead to uniformly negative performance. However, once the initial dust has settled, investors include factors such as the transaction mode (merger vs. acquisition) into their situation analysis, explaining the statistically significant outperformance of acquisitions during the first ten days following the announcement date.

Expected order			-20,+20	-20,-1	-1,+1	0	-3,+3	-1,+5	+1,+10	+11,+20
Acquisition (n=23)	higher	mean	-0.61%	1.69%	-3.65%	-1.64%	-2.21%	-3.81%	-0.35%**	-0.24%
Merger (n=12)	lower	mean	1.36%	5.20%	-4.05%	-3.72%	-5.14%	-5.43%	-4.26%**	4.02%
		$order_A$	-	-	+	+	+	+	+	-
		p-value	0.400	0.244	0.455	0.202	0.236	0.334	0.047	0.112

*** Statistically significant at 95% level*

$order_A$ + if the mean values in the sample behave as expected, - if not

Table 6.5. Bidder returns in acquisitions and mergers

6.3.2 Operational performance of the target

As described earlier, I have complemented my cross-sectional analysis with the following operational metrics of the target: return on equity (ROE), market-to-book ratio and the

operating margin. Abnormal returns for the bidder were regressed against these variables to test the various hypotheses outlined above. The results are displayed in the table 6.5 below.

	Expected sign		-20,+20	-20,-1	-1,+1	0	-3,+3	-1,+5	+1,+10	+11,+20
ROE	negative	mean	-4.45%	6.87%	-10.1%**	-11.2%**	-7.43%	-10.3%*	-1.31%	1.24%
(n=16)		p-value	0.689	0.445	0.027	0.000	0.163	0.059	0.664	0.695
		R^2	0.005	-0.044	0.109	0.474	0.079	-0.001	-0.028	-0.060
Market/book	negative	mean	-0.03%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	0.00%	0.00%
(n=17)		p-value	0.397	0.512	0.427	0.219	0.319	0.499	0.641	0.641
		R^2	0.035	-0.009	-0.293	-0.114	-0.040	-0.310	-0.073	-0.006
Operating margin	negative	mean	-3.81%	-0.38%	-0.13%	-0.43%	0.41%	-1.55%	-0.41%	-2.56%
(n=30)		p-value	0.574	0.932	0.967	0.849	0.910	0.652	0.809	0.365
		R^2	0.009	-0.031	-0.167	-0.179	-0.103	-0.180	-0.023	0.027

*** Statistically significant at 95% level*
** Statistically significant at 90% level*

Table 6.6. Relationship between target financials and abnormal returns

As explained earlier, my hypothesis is that a low **return on equity** (ROE) for the target company is a sign of suboptimal use of capital invested. Mirroring the results presented by Palepu (1986), my sample yielded some statistically signficant support for the inverse relationship between abnormal returns and return on equity. As hypothesized, the estimated coefficients for the independent variable are negative in six of the eight event windows studied, and statistically significant during the immediate days surrounding the announcement. Statistical significance is surprisingly strong, given the small sample size (n=16). Potential for ROE improvement through more efficient deployment of capital seems to have played a role in the mergers, where capital markets have rewarded the acquiring party with positive abnormal returns when the transaction has been announced.

The hypothesis with the **market-to-book** argument was that a low market-to-book ratio should lead to higher abnormal returns. As was the case with ROE, the estimated coefficients are of the expected sign (negative) but this inverse relationship cannot be confirmed statistically. Small sample size is once again a factor but in this case it seems that investors have placed very little emphasis on book value when the initial stock market reaction is studied. Coefficients in each of the eight event windows studied are only marginally different from zero, suggesting that the book value of the target was more or less ignored.

The **operating margin** of the target was illustrated to reflect the available opportunities for scope economies. The lower the margin of the target, the more potential there is for margin improvement when less profitable operators are acquired by their more profitable rivals. However, my sample did not produce results which would support this hypothesis. The estimated coefficients are negative but the deviation from zero is marginal and statistical significance is remote.

Overall, in spite of the small sample size, it can be concluded that traditional operational metrics played a minor role when the earnings logic of the transaction was assessed. The irrelevance of book value is easy to understand as the market valuations of communications service providers had soared to such stratospheric heights that the company's book value was often less than 20% of its market capitalization (the median price-to-book value in my sample is 6.3, not including the acquisition premium). Similarly, many of the acquired operators, especially in the wireless side, were still racking up operating losses at the comparable level to their revenues, suggesting that strategic thinking reigned supreme over financial rigour.

6.3.3 Acquirer and acquisition characteristics (industry specific)

I argued above that financial metrics played the second (or third) fiddle when the logic behind a particular acquisition was assessed. This seems to suggest that the main reasoning behind the acquisition spree was purely strategic and motivated by the market forces, which all pointed at years of double- if not triple-digit growth for the communications industry. Obviously, there is no time for organic growth in this kind of environment.

As described in the section 5.2.6, I have categorized the events in my sample into focus-preserving and focus-decreasing transactions. Focus-preserving transactions are defined as extensions of the existing business through horizontal expansion either in the home market or abroad whereas focus-decreasing acquisitions involve adding new products or services into the acquirer's product portfolio. Moreover, I have argued before that wireless acquisitions generate higher abnormal returns to shareholders compared to wireline acquisitions. The results of related regression tests are presented in the table below.

	Expected order		-20,+20	-20,-1	-1,+1	0	-3,+3	-1,+5	+1,+10	+11,+20
Focus-decreasing (n=12)	lower	mean	-6.55%*	2.80%	-6.57%*	-4.33%*	-7.81%**	-8.06%*	-1.89%	-3.14%**
Focus-preserving (n=24)	higher	mean	3.76%*	3.14%	-1.39%*	-0.73%*	0.12%**	-1.39%*	-1.93%	3.35%**
		$order_A$	+	+	+	+	+	+	-	+
		p-value	0.094	0.474	0.068	0.072	0.022	0.068	0.493	0.027
Fixed (n=18)	lowest	mean	-6.57%	1.21%	-5.56%	-3.58%	-5.09%	-6.63%	-2.42%	-1.69%
Mixed (n=13)	higher	mean	2.33%	4.64%	-1.90%	-1.77%	-1.82%	-3.49%	-1.46%	0.91%
Wireless (n=6)	highest	mean	11.00%	2.80%	1.13%	1.49%	1.77%	2.33%	-0.09%	6.82%
			+	-	+	+	+	+	+	+
Two-sample t-test for means	F vs. M	p-value	0.093*	0.252	0.153	0.240	0.208	0.191	0.338	0.192
	M vs. W	p-value	0.219	0.385	0.228	0.126	0.260	0.123	0.353	0.067*
	F vs. W	p-value	0.066*	0.420	0.096*	0.077*	0.117	0.043**	0.193	0.044*
Non-wireless target (n=25)	lower	mean	-1.94%	3.38%	-4.19%	-2.92%*	-3.37%	-5.27%	-1.62%	-0.72%**
Wireless target (n=11)	higher	mean	5.48%	2.23%	-0.69%	0.33%*	-0.58%	-0.78%	-2.59%	5.52%**
			+	-	+	+	+	+	-	+
		p-value	0.179	0.414	0.164	0.099	0.250	0.116	0.340	0.036

** *Statistically significant at 95% level*

* *Statistically significant at 90% level*

$order_A$ *+ if the mean values in the sample behave as expected, - if not*

Table 6.7. Relationship between merger and target characteristics and abnormal returns

The observations in my sample seem to confirm that initial stock market reaction is more favorable towards focus-preserving transactions. In spite of the limited sample size, this is also confirmed statistically in the events surrounding the event date. These results support the notion that growth per se was not seen as the holy grail in the management strategy that prevailed in the late 20th century. The keen focus on core competence was deemed equally important and something not to be sacrificed at the altar of growth. My findings are in line with the empirical evidence presented by Maquieira et al. (1998) and Comment and Jarrell (1995).

The capital markets have expressed a certain degree of judgment when it has come to the type of the acquirer. When the events in the sample were categorized into fixed, mixed and wireless acquirers, the data yielded uniform results in terms of abnormal returns for each category; in each of the eight event windows studied, the returns are lowest for the wireline bidder, while the investors rewarded wireless bidder with the highest returns. However, the small sample size did not allow statistical significance to be confirmed. Consequently, I tried categorizing the acquisition targets according to targets' SIC code to wireless operators and other. However, as the sample contained only 12 pure-play wireless targets, I failed to corroborate statistically that capital markets have preferred acquisitions on the wireless side.

Nevertheless, the findings support the notion presented in the previous chapter where I conclude that strategic motives far outweighed financial considerations when acquisitive operators conducted their due diligence. In hindsight, this is hardly a groundbreaking finding but interesting nonetheless as it once again demonstrates that capital markets do not reward the companies for diversification. Investors can take care of that, while the companies should focus on operations where their comparative advantage is maximized.

7 Case analysis: Vodafone and WorldCom

7.1 Introduction

While my empirical research failed to provide unambiguous support for the notion that acquisitions overall are value-adding tactics for the shareholders of the acquiring company, I was able to isolate certain characteristics, which increase the likelihood of success. The purpose of this chapter is to take a closer look at two telecommunications operators in my sample and see how well these companies fared in their acquisitions.

I have selected Vodafone and WorldCom for closer case analysis. First, both operators completed at least three acquisitions during my sample period, providing me with ample material to work with. Second, they represent the opposite ends of operator spectrum defined in the section 6.3.3: wireless (Vodafone) and fixed (WorldCom), allowing me to discuss the differences between these two groups in more detail. Lastly, as the demise of WorldCom is now well known, I can study the material to see whether such vast performance deviation from Vodafone could have been predicted at the time when these companies went on their respective acquisition sprees.

							Bidder CAR (t)		
Bidder	Target	Date	Price ($bn)	Premium	ROE (%)	Focus	(-20,-1)	0	(+1,+20)
Vodafone	Airtouch	15-Jan-99	60.3	26%	8.7%	Yes	-0.2%	9.3%	-8.0%
Vodafone	Mannesmann	15-Nov-99	104	10%	13.9%	No	-13.8%	-3.0%	-11.8%
		19-Nov-99	125	32%			[1]	-5.0%	-0.4%
		20-Dec-99	148	56%			-0.4%	-5.7%	2.7%
		3-Feb-00	203	113%			14.9%	-8.0%	-12.9%
WorldCom	MFS	26-Aug-96	13.6	59%	negative	Yes	5.0%	-14.5%	-13.0%
WorldCom	MCI	1-Oct-97	30	41%	5.7%	No	7.47%	-5.24%	-0.18%
		10-Nov-97	37	76%			-9.21%	-7.41%	-2.83%

[1] *not measurable as performance is greatly impacted by the announcement of first bid*

Table 7.1. Overview of mergers and acquisitions selected for closer study

7.2 Vodafone

Vodafone is currently the world's second-largest mobile operator (after China Mobile) with 139 million proportionate subscribers at the end of June[2]. However, in late 1998 when the company had not yet commenced its most intense acquisition phase, Vodafone only had some 10 million subscribers worldwide[3]. Thus, at that time some two thirds of Vodafone's revenues were generated in its domestic market in the UK. However, Vodafone had greater ambitions than this. In its annual report for the fiscal year ended March 31, 1998, Vodafone outlined its growth strategy as follows: 'International strategy is designed to achieve substantial growth which should see Group earnings from overseas on a par with those from the UK within the next five years. International operations will continue to expand by bidding for new licences, by acquisition and by developing existing businesses.'

7.2.1 Vodafone acquires AirTouch

Vodafone did not wait long to act upon this strategy. On January 15, 1999 it was announced that Vodafone plans to acquire the California-based AirTouch Communications, creating the world's largest mobile operator in the process. For a foothold in the US, as well as Airtouch's 17.7 million subscribers, Vodafone was willing to pay $60.3bn in cash and stock, representing a 26% premium over the Airtouch share price that had prevailed before Vodafone made its intentions public.

In spite of the sizeable premium, Vodafone's own share price rose by 14.7% when the terms of the transaction were announced. This suggests that at that time investors were prepared to overlook the premium (which my empirical research established to correlate inversely with the post-acquisition share price performance for the bidder) if the transaction passed muster on strategic aspects. Moreover, Airtouch had a relatively low ROE (8.7%), which I have earlier postulated to indicate that the company is unable to generate necessary returns for its capital invested. Vodafone's immediate share price performance after the acquisition announcement would indicate that investors were confident on Vodafone's ability to leverage Airtouch's capital assets in a more efficient manner, boosting its ROE in the process.

---

[2] Latest Key Performance Indicators for the quarter ended June 30, 2004 (www.vodafone.com)

[3] Vodafone 1998 annual report (www.vodafone.com)

At the end of the day, my ex-post assessment is that investors were mainly concerned with strategic features of the acquisition. After all, Vodafone paid effectively $3,400 for each Airtouch subscriber, a price tag that implies aggressive growth expectations from acquired operations. However, from a strategic viewpoint Airtouch was a good fit for Vodafone; it was almost exclusively focused on wireless telephony and it offered Vodafone a strong foothold in the US market where the company had previously lacked presence. Finally, Vodafone and Airtouch had already crossed paths in Sweden, where they both had had an ownership stake in Europolitan, third largest mobile operator in the country. Thus, with the exception of rather steep acquisition premium, Vodafone's acquisition of Airtouch fulfilled the criteria that I found to increase the likelihood of a positive initial reaction from investors: target had a low ROE, it operated in the same industry as the bidder (focus-preserving transaction) and both parties were wireless operators.

7.2.2 Vodafone acquires Mannesmann

Emboldened by its success with Airtouch, Vodafone did not wait long before it decided to start pursuing a new target. On Sunday, November 14 of 1999, the German conglomerate Mannesmann came public with the details of a hostile bid from Vodafone. According to the terms presented, and swiftly rejected by Mannesmann's management, Vodafone had offered $104bn, paid fully in Vodafone's own shares, for all outstanding stock of Mannesmann, representing some 10% premium over Mannesmann's then-prevailing share price.

In spite of the rather modest premium, Vodafone's share price took a beating when the acquisition proposal was announced. Already on Friday, November 12, when acquisition rumors started to circulate, Vodafone's share price slid 6.6%, underperforming the benchmark index clearly. Then, after the terms of the transaction became available over the weekend, another 8.3% of Vodafone's market capitalization was wiped out during November 15-16. Clearly, investors adopted a very different attitude to the proposed transaction than was the case when Vodafone announced its intentions to acquire Airtouch.

Our ex-post due diligence gives us some clues to explain this response. First, at the time of the announcement, Mannesmann's return on equity (ROE) was 13.9%, implying that achievable efficiency gains were smaller than was the case with Airtouch. Second, besides controlling the German mobile operator D2, Mannesmann was a conglomerate company with sizeable engineering and automotive operations as well as considerable holdings in

fixed-line assets. In 1999 Mannesmann had three basic lines of business: Telecommunications (39% of total sales), engineering and automotive (53%), and tubes (8%)[4]. In spite of Vodafone's clearly articulated intentions to divest these non-core businesses as soon as possible, the proposed transaction did not fulfill the criteria for a focus-preserving transaction. Third, Vodafone's bid was unmistakably hostile and the general consensus among the investment community was that the company would have to raise its bid significantly in order to gain majority approval from Mannesmann's shareholders. Lastly, Mannesmann itself was in the process of acquiring the UK-based mobile operator Orange, implying that if Vodafone would succeed in its acquisition of Mannesmann, regulatory constraints would oblige the company to divest Orange, at arguably lower price than that paid by Mannesmann.

With the benefit of a perfect hindsight, it can now be said that the initial concern displayed by investors was warranted. On November 19 1999, a mere three days after announcing its first bid, Vodafone raised its bid by 23%. This announcement led to a further 5% underperformance in Vodafone's share price vis-à-vis the benchmark index. However, even this raised bid, worth some $125bn at the time, failed to receive positive response from Mannesmann's management. At this point it seems that investors started to question whether Vodafone would ever succeed in acquiring Mannesmann, as Vodafone's share price recovered and more or less followed the general market index for the following four weeks or so.

By December 20 1999, Vodafone's share price had climbed nearly 15% from the level it had plummeted to when it initially announced its hostile bid for Mannesmann. However, on this particular date Vodafone sent out a press release stating that it has 're-launched' its bid for Mannesmann[5]. Bid terms were unchanged from those set forth on November 19 but Vodafone was now able to capitalize on the 15% increase in its own share price to make the offer sound more attractive. Investors, noticeably disappointed with Vodafone's persistence, sold off its shares and contributed to another 5.75% underperformance in Vodafone's share price on December 20.

Undeterred, Vodafone barged ahead. On February 3, 2000, Vodafone raised its offer once more, this time by some 10%. Once again, investors punished Vodafone by sending its

---

[4] http://www.kaub.de/pdf_files/Report%20M&A%20Vodafone_Mannesmann_Team5.pdf

[5] Vodafone press relese, December 20 1999

shares down by more than 10% during February 3rd and 4th. However, given than Vodafone's share price had risen strongly during early 2000, its offer was still worth more than $200bn. Consequently, Mannesmann's management threw in the towel and advised its shareholders to accept the deal. And rightfully so, given that Mannesmann's relentless takeover defense, coupled with soaring share prices, had resulted in a final bid, which at that time was worth almost twice as much as Vodafone's initial bid just three months earlier. Even if the increase in Vodafone's share price is not taken into account, Vodafone's final bid was 35% better than its initial bid.

In the following six months Vodafone's share price lost 35% of its value. Obviously, Vodafone was hardly alone in this as the great bull market had peaked in late March 2000 and valuations, especially in the technology sector, had started to decline markedly. Also, European operators were spending heavily to acquire 3G licenses, which would permit them to offer the much-hyped next generation communications services to their subscribers in various European countries. However, while it is difficult to isolate the explicit impact that the Mannesmann acquisition had on Vodafone's share price, it was undoubtedly negative, and correctly so. After all, Mannesmann was a conglomerate company with less than 40% overlap with Vodafone's operations. And the fact that Vodafone, after seeing its share price plummet 15% around the time when it launched its initial, persevered and ended up raising its bid twice before succeeding with the transaction, did not help one bit. Hence, while Vodafone has survived and has managed to even strengthen its position as the clear leader, I argue that this has happened in spite and not because of the Mannesmann acquisition. Fortunately for Vodafone, and unfortunately for its shareholders, the notorious Mannesmann transaction was carried out fully in stock.

7.3 WorldCom

WorldCom, founded in 1983 under the name LDDS (Long-Distance Discount Service), had grown rapidly through acquisitions in late eighties and early nineties. By 1995, the company had reached a #4 position in the US long-distance telephony market. However, the company had vaster ambitions, which were set in motion with the acquisition of Williams Communications, the #5 player in the domestic long-distance market. These transactions provided WorldCom with sufficient scale and allowed the company to offer

voice, data and video services to business customers, other carriers and the residential market, both domestically as well as internationally. [6]

7.3.1 WorldCom acquires MFS Communications

In August 26, 1996, WorldCom announced its first acquisition where the purchase price exceeded $10bn. The company offered $13.6bn in stock for MFS Communications, which operated local-calling networks for business customers in major cities and competed with the Baby Bells that had previously enjoyed a de facto monopoly in the provision of local call services for corporate customers. The acquisition strengthened WorldCom's customer base on the corporate side and allowed the two companies to connect MFS's metropolitan intra-city networks with WorldCom's long-distance inter-city networks, implying a clear synergistic fit between the companies' assets. Moreover, prior to the WorldCom bid, MFS had announced intentions to acquire UUNET, a company that had pioneered the Internet Service Provider (ISP) business model. Thus, from a purely strategic standpoint, an acquisition of MFS seemed to make a lot of sense.

However, WorldCom's decision to pay a 59% premium for MFS did not make too much sense for WorldCom's shareholders. Subsequent to outperforming the benchmark index by 5% during the 20 trading days prior to the acquisition announcement, WorldCom's share price plummeted by 14.5% when the terms of the transaction were announced on August 26. This is hardly surprising, given that MFS's latest annual report had shown an operating loss of $262 million on annual sales of $740 million. Thus, WorldCom's offer price implied a price/sales multiple of 18.4, a preposterously high valuation for a heavily loss-making company. Moreover, the acquisition was announced in mid-1996 and represented the first major transaction after the 1996 Telecommunications Act was enacted in the United States. Accordingly, investors had not yet grown accustomed to multibillion-dollar mergers among service providers. In a way, one can argue that WorldCom pioneered stratospheric valuations and high premiums that characterized the merger frenzy in the telecommunications sector around the turn of the century.

---

[6] BusinessWeek, October 13, 1997

7.3.2 WorldCom acquires MCI Communications

WorldCom did not rest on its laurels for long. On October 1 1997, little more than a year after the acquisition of MFS was announced, WorldCom entered the bidding contest for MCI Communications, which at the time was the second-largest long-distance company in the US. MCI was already courted by the UK-based British Telecom (BT), which had already in November 1996 announced intentions to acquire the remaining 80% stake in MCI it did not already own with a combined cash-and-stock bid that valued MCI Communications at $20.8bn. However, the proposed BT/MCI merger ran into a snag during the summer of 1997 when MCI announced that it expected its 1997 net result to show a loss of some $800 million due to costs associated with its attempt to break into the local telephone market in the US[7]. This announcement prompted British Telecom to start negotiating a lower acquisition price in the range of $16-17bn, down considerably from the initial bid of $20.8bn.

These renegotiations opened a window of opportunity for competing bids. WorldCom reacted quickly and announced on October 1 1997 that it has offered $30bn in stock for MCI Communications, implying more than 41% premium over MCI's share price and British Telecom's offer. GTE Corporation, third-largest local telephone company in the US, followed quickly with a $28bn all-cash bid for MCI. Determined not to be outbid, WorldCom responded on November 10 with a raised bid worth some $37bn in its own stock. At this point GTE threw in the towel and withdrew from the bidding contest. Also, British Telecom agreed to sell its 20% stake in MCI to WorldCom[8], which had therefore emerged as the winner of the bidding contest for MCI Communications.

WorldCom's share price performance (see table 7.1) before and during the bidding contest makes for interesting reading. First, WorldCom outperformed the benchmark index clearly (+7.5%) during the 20 trading days prior to the announcement of its initial bid for MCI. Obviously, investors sensed a potential bargain once they became aware of the rift between British Telecom and MCI Communications. However, as soon as the terms of WorldCom's bid were published, the proposed 41% premium spooked investors and led to a 5% weakening in WorldCom's share price. This underperformance intensified when GTE launched its competing bid for MCI as investors were well aware of WorldCom's

---

[7] Associated Press, August 22, 1997

[8] UK Business Park, November 11, 1997

acquisitive background and speculated that the company would raise its bid for MCI. Thus, during the three weeks between GTE's competing bid and WorldCom's raised bid, WorldCom's share price underperformed the benchmark index by 9%. Finally, when WorldCom raised its bid for MCI, proposing to pay a premium, which was effectively 100% above the level where MCI's share price had been before it had become an acquisition target, WorldCom's share price plunged another 7%.

Once again, the merger with MCI seems like a great strategic fit. According to WorldCom's management, combination of the two companies would yield some $20bn in cost savings during the first five years[9]. Also, WorldCom and MCI controlled more than 20% of the Internet access market, providing the new entity with a strong foothold in this rapidly growing market. However, judging from the stock market reaction, investors were somewhat skeptical and did not share the exuberant optimism expressed by WorldCom's management. Besides paying the high premium, the acquisition of MCI was a focus-decreasing transaction for WorldCom as MCI operated mainly in local telephony while WorldCom was still predominantly a long-distance operator. My research suggests that WorldCom deserved to be duly punished as it violated these two criteria, which I have identified as characteristics in successful acquisitions.

7.4 Conclusions

The purpose of this chapter was to apply the findings of my empirical research in selected mergers and acquisitions in my sample. As this brief account suggests, acquisitions among large operators were motivated almost solely by strategic considerations. This led to high valuations with unrealistic synergy expectations. Overall, investors were able to separate successful acquisitions from those transactions, which did not make strategic sense or where the buyer simply paid too much. I will discuss this in more detail and present my framework for successful acquisitions in the next chapter.

---

[9] Associated Press, November 11, 1997

8 Conclusions

I started working on this thesis five years ago. In late 1999 the great bull market was still six months shy of its March 2000 peak. The telecom industry was feverishly gearing up to what was to be a revolution in the industry: the so-called broadband access was on the verge of taking the world by the storm, first on the wireline side, soon to be followed in the mobile world. The communications service providers were investing heavily in order to be ready when the customers would be beating down their door demanding the new services and applications enabled by broadband networks. Build it and they will come was the mantra in the late 90's.

Well, it is now October 2004 and they are only now starting to come. The communications service provider industry is still burdened by heavy debt loads, which were amassed during the acquisition craze of the 90's. WorldCom is a case in point. The US-based long-distance operator was mulling its options as the turn of the millennium was approaching and both the Internet as well as cellular handsets seemed to be undermining their future growth potential. To avoid death by obscurity, WorldCom went on an acquisition spree, snapping up companies left and right in a bold attempt to become a one-stop shop for communications needs of consumers and companies alike. The strategy backfired as the company overextended itself in its pursuit. My argument is that WorldCom's disastrous acquisition strategy, or lack thereof, is the main culprit behind its demise. The company grossly overlooked the following guidelines for mergers, which I have derived from my empirical research:

i) There is no justification for paying an excessive premium. This is particularly so when the transaction is focus-decreasing. The explicit integration costs are higher in this type of transaction while the vague cross-selling opportunities materialize over the longer-term, if at all. Undeterred, WorldCom went ahead and outbid British Telecom to acquire the long distance telephony and Internet backbone provider MCI Communications for USD 42bn in stock, representing more than a 100% premium over British Telecom's initial offer.

ii) Investors do not reward companies for diversification. Investors have an abundance of alternatives to invest their money into, so they would rather see the company sticking to its core competence. WorldCom chose the opposite in its attempt to become a diversified communications conglomerate. Besides the MCI acquisition, WorldCom acquired the consumer-oriented Internet Service Provider (ISP) CompuServe. While the USD 1.2bn

price tag for that acquisition was not particularly steep, WorldCom still paid USD 350 for each CompuServe customer. Given how fickle these customers turned out to be when the Internet Goliaths AOL and Microsoft started flexing their muscles in an attempt to grow their respective customer bases, WorldCom could do little but witness its valuable customers defecting to competitors' networks.

iii) Financial due diligence should be rigorous even if primary motivation for the acquisition is strategic. At the time when WorldCom acquired MFS Communications, the company's latest annual report had shown an operating loss of $262 million on annual sales of $740 million. Thus, WorldCom's offer price implied a price/sales multiple of 18.4, a preposterously high valuation for a heavily loss-making company.

On the other hand, the UK-based wireless operator Vodafone was hardly more prudent in its expansion strategy. It acquired stakes in wireless operators in continental Europe, the US, Japan, Australia and Scandinavia, often at substantial premium, with the Mannesmann acquisition analyzed in Chapter 7 being the prime example of Vodafone's excesses. However, in spite of the breakneck speed of Vodafone's expansion, the company has managed to strengthen its position as the leading global mobile operator. Moreover, its balance sheet remains strong, with net debt to sales multiple at a healthy 0.3 level, only slightly above the 0.2 median values for European pure-play mobile operators[10].

I argue that Vodafone's aggressive strategy worked because:

i) The company engaged mainly in focus-preserving transactions. With the exception of the Mannesmann acquisition, Vodafone has acquired almost solely pure-play wireless operators and has actively divested existing operations with little or no synergies with mobile communications. So in a sense Vodafone has executed a focus-increasing growth strategy, funding acquisitions of mobile operators with a cash flow from divestments of non-core operations.

ii) Network effects are stronger in wireless communications. As argued before, the utility of the service for Vodafone's subscriber increases as the function of the total number of subscribers. Consequently, the average revenue per user in the total subscriber base is the function of the customer base, creating a strong incentive to accelerate growth through

---

[10] At the time of writing (October 15, 2004), source: JCF Finance

acquisitions. With its pan-European footprint, the company seems poised to either earn superior margins or continue winning over subscribers from its smaller competitors.

iii) Vodafone was fortunate enough to operate in a growing industry. Mobile communications started to really take off in late 90's, coinciding with Vodafone's strategic decision to accelerate its organic growth through acquisitions. Unlike WorldCom, which needed to diversify away from its area of core competence (discount long-distance telephony) in order to enter growth segments, Vodafone only needed to sharpen its focus within the mobile communications segment. In other words, growth through acquisitions seems to have been a winning strategy within rapidly-growing mobile communications segment, while the WorldCom example illustrates that this was not the case in the maturing wireline industry.

These examples illustrate the main argument of my thesis. Mergers and acquisitions, if not equivocally value-adding as a whole, are a great vehicle for growth acceleration in a rapidly growing market, which has a strong propensity for network effects. However, stringent requirements for focus preservation remain, i.e. growth should only be sought in areas within company's core competence. By the same token, the most value-destroying transactions are those where a company in a mature industry is trying to resume growth by broadening its service and product portfolio beyond its traditional focus areas. Hopefully, the insight we now possess into the carnage seen in the telecom industry will enable us to allocate resources more efficiently in the future and not waste billions of shareholder wealth in the process.

9 Suggestions for further research

I chose to focus on the short-term stock market response to gauge whether the acquisitions in my sample were deemed value-enhancing or not. However, as the transactions in my sample took place between 1996 and 2000, a logical extension for this thesis would be to measure the long-term effects of these acquisitions for the acquiring party shareholders. Loughran and Vijh (1997) have studied post-acquisition performance for acquiring firms over the five-year period following the event. They categorized their sample according to the mode of the acquisition (merger or tender offer) and the form of payment (stock or cash) and concluded that all-stock mergers were the most harmful acquisitions for the acquiring party shareholders. On the other hand, acquisitions that were conducted via cash tender offers yielded excess returns of some 62% for the acquiring party shareholders.

In my sample of 56 mergers and acquisitions within the operator industry, the most interesting (statistically significant) cross-sectional variables related to strategic characteristics of the transactions. Thus, it would be very interesting to study the long-term performance for bidders that had engaged in focus-preserving vs. focus-decreasing transactions. The hypothesis is that the former acquirers outperform their less-focused peers also in the long run. This would also be a joint test for market efficiency as this hypothesis, if it were to find stronger statistical support among the observations in the sample, implicitly states that market underestimates the importance of focus when the acquisition is announced.

Rau and Vermaelen (1998) also built upon the topic of mergers vs. tender offers and the subsequent long-term share price performance for the acquirer. They extended the scope of the research by controlling the observations in their sample with various cross-sectional variables and hypotheses. The hypothesis relevant to my research is their *performance extrapolations* hypothesis, which suggests that the market tends to over-extrapolate the past performance of a bidder when it assesses the value of an acquisition. These so-called 'glamour' bidders, companies with a string of acquisitions under their belt and high market-to-book ratios, often receive favorable initial reaction from the stock markets. The authors argue, and find statistically significant support for their argument, that this effect is reversed over time, leading to negative abnormal results during the post-acquisition period.

With the exception of splitting the acquirers into fixed, mixed and wireless operators, I did not analyze the acquirer characteristics in my thesis. It is very likely that the performance

extrapolation, or glamour, hypothesis would have found support in my sample. It is likely that financial markets rewarded 'seasoned' acquirers more generously than those who were braving the M&A market for the first time. Moreover, it would be interesting to see whether this proposed outperformance would reverse itself over time, as was the case in the Rau and Vermaelen (1998) study.

However, I have my doubts whether this approach would yield meaningful results. First, virtually every US-based or European service provider that is still around today, has been involved in various M&A transactions during the last five years. Therefore, a clean control group or an index, which would include only peer companies that had not engaged in acquisitions, is nearly impossible to construct. Consolidation in the operator industry has been so intense that it is difficult to fathom, let alone objectively measure, an alternative industry structure.

On the other hand, a more productive approach would be to focus on the operational performance improvements achieved by the acquiring companies, i.e. whether the acquisition yielded tangible synergy benefits or not. Cost savings achieved through more efficient use of capital, increased revenues gained through cross-selling and network effects as well as improvements in operational leverage should contribute to a measurable improvement in profit margins and return on equity, capital employed and assets (ROE, ROCE and ROA). Due to the lack of clean control group, I would use the historical margins and ratios achieved by these companies as benchmarks.

Healy and Palepu (1992) examined the 50 largest US mergers between 1979 and 1984 and their subsequent impact on the cash flow of the acquiring firm. They found statistical support for their hypothesis, which argues that increased asset productivity contributes to an improvement in acquirer's operating cash flow in the post-acquisition period. Moreover, the acquiring firms in their sample maintained their R&D and capital expenditures at median levels observed in their respective industries, which is interpreted by the authors as proof that acquirers are not undermining their future growth potential by cutting investments or R&D to improve cash flow. Encouragingly, Healy and Palepu (1992) also found support for the notion that high business overlap of merging firms (i.e. focus-preserving transaction) led to higher post-acquisition cash flows than lower degree of overlap.

Following Healy and Palepu's example (1992) I would explore whether operators have managed to derive significant scale economies from acquisitions. However, I would argue

that for the operators one of the most important sources for improved cash flow is the ability to lower the ratio of capital expenditures as a percentage of sales. The hypothesis is that larger operators can improve their capacity utilization and invest less, relatively speaking, into their networks. This would boost their cash flow and return on invested capital. Moreover, these operators should have lower needs for working capital as their asset base is used more efficiently. I would complement the analysis by tracking the ratio of net working capital (NWC) to net assets for acquiring companies in my sample and see how the post-acquisition ratios compare with historical levels.

Next I would delve into synergies achieved through economies of scope. For communications service providers, scope economies translate into lower levels of R&D for acquisitive operators. Hence their operating profitability should also exceed their peers. I would first explore whether the R&D to sales ratio will decrease after the acquisition. After investigating the effect on R&D costs, I would supplement the analysis by examining whether lower R&D translates into higher operating profitability or whether the scope economies are offset by higher marketing costs or depreciation.

Finally, one aspect warranting further research is target prediction. The observations in my sample once again confirmed that the shareholders of the company being acquired reap the majority of short-term benefits when the acquisition is announced. Stevens (1973) and Hasbrouck (1985) have conducted studies, where they attempt to find common denominators for acquired companies, which would distinguish them from their non-acquired peers. As described earlier, Palepu (1986) took this one step further and constructed a model, which he then used to predict takeover targets, based on the nine variables identified in his sample of 163 acquisitions.

However, applying Palepu's (1986) formulae to predict acquisitions in a single industry has its caveats. We have concluded that the primary motivation behind intra-industry mergers is strategic and therefore Palepu's (1986) hypotheses, which build upon financial metrics, are of little use. The evidence presented in section 6.3.2 where we saw that operational ratios of the target played very little, if any, role in target selection corroborated this. Consequently, Palepu's (1986) methodology is not very useful in an attempt to predict acquisition targets within a single industry.

References

Anonymous, 1999, How to merge – after the deal. Economist, January 9th, 19–21.

BDO Seidman LLP, 2002, Significant 2001 Financial Reporting Developments, February 2002.

Berger, A.N., Humphrey, D.B., 1992, Mega-mergers in Banking and the use of Cost Efficiency as an Anti-trust Device. Anti-Trust Bulletin 37, 541-600.

Berger, A.N., Humphrey, D.B, 1994, Bank Scale Economies, Mergers, Concentration, and Efficiency: The U.S. Experience. Working Paper #94-25, Wharton Financial Institutions Center.

Campbell, J.Y., Lo A.W., MacKinlay, A.C., 1997, The Econometrics of Financial Markets. Princeton University Press.

Comment, R., Jarrell, G.A., 1995, Corporate focus and stock returns. Journal of Financial Economics 37, 67–87.

Copeland, T.E., Weston, J.F., 1988, Financial Theory and Corporate Policy. 3rd Edition, Addison-Wesley Publishing Company.

Damodaran, A., 1994, Damodaran on Valuation. John Wiley & Sons.

Desai, A.S., Stover, R.D., 1985, Bank Holding Company Acquisitions, Stockholder Returns, and Regulatory Uncertainty. Journal of Financial Research, Vol. 8, No. 2, 145-156.

Eccles, R.G., Lanes, K.L., Wilson, T.C., 1999, Are You Paying Too much for That Acquisition? Harvard Business Review, Jul–Aug 1999, 136–146.

Eckbo, B.E., 1985, Mergers and the Market Concentration Doctrine: Evidence from the Capital Market. Journal of Business, Vol. 58, no. 3, 325–349.

Financial Accounting Standards Board, 1999, FASB to Eliminate Pooling of Interests Accounting. News release, May 26.

Financial Accounting Standards Board, 2000, Business Combinations, Project Summary as of July 19, 2000.

Financial Accounting Standards Board, 2001, FASB Issues Two Statements on Its Business Combinations Project. News release, July 20.

Franks, J., Harris, R., Titman, S., 1991, The post-merger share-price performance of acquiring firms. Journal of Financial Economics 29, 81–96.

Hasbrouck, J., 1985, The Characteristics of Takeover Targets – q and other measures. Journal of Banking and Finance 9, 351-362.

Healy, P.M., Palepu, K.G., Ruback, R.S., 1992, Does corporate performance improve after mergers? Journal of Financial Economics 31, 135–176.

Healy, P.M., Palepu, K.G., Ruback, R.S., 1997, Which Takeovers Are Profitable? Strategic or Financial? Sloan Management Review, Summer, 45–57.

Huang, R.D., Walkling, R., 1987, Acquisition Announcements and Abnormal Returns. Journal of Financial Economics 19, 329-350.

James, C., Wier, P., 1987, Returns to acquirers and competition in the acquisition market: the case of banking. Journal of Political Economy, vol. 95, issue 2, 355-370.

Jensen, M.C., Meckling, W.H., 1976, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. Journal of Financial Economics, Vol. 3, 303-360.

Jensen, M.C., Ruback, R.S., 1983, The market for corporate control: the scientific evidence. Journal of Financial Economics 11, 5–50.

Johnson, L.T., Petrone, K.R., 1999, Why Eliminate the Pooling Method? FASB Viewpoint, Status Report, August 31.

Johnson, L.T., Petrone, K.R., 1999, Why Not Eliminate Goodwill? FASB Viewpoint, Status Report, November 17.

Kim, E.H., Singal, V., 1993, Mergers and Market Power: Evidence from the Airline Industry. American Economic Review, Vol. 83, no. 3, 549–569.

Lang, L., Stulz, R., Walkling, R.A., 1989, Managerial performance, Tobin's q and the gains from succesful tender offers. Journal of Financial Economics 24, 137-154.

Levy, H., Sarnat, M., 1970, International Diversification of Investment Portfolios. American Economic Review, vol. 60, issue 4, 668-675.

Lewellen, W.G., 1971, A Pure Financial Rationale for the Conglomerate Merger. Journal of Finance, May, 521-545.

Loughran, T., Vijh, A.M., 1997, Do Long-Term Shareholders Benefit From Corporate Acquisitions? Journal of Finance, Vol LII, No. 5, 1765–1790.

Martin, K.J., 1996, The method of payment in corporate acquisitions, investment opportunities, and management ownership. Journal of Finance, vol. 51, 1227–1246.

Maquieira, C.P., Megginson, W.L., and Nail, L., 1998, Wealth creation versus wealth redistribution in pure stock-for-stock mergers. Journal of Financial Economics 48, 3–33.

McGoldrick, B., 1998, Calling the 21st century: Competition, consolidation, and convergence. Global Finance, Vol. 12, no. 6, 83–89.

Mercer Capital's Transaction Advisor, Vol. 4, No. 3, 2001.

http://www.mercercapital.com/

Mueller, D.C., 1969, A Theory of Conglomerate Mergers. Quarterly Journal of Economics, November, 643-659.

Myers, S., Majluf, N.S., 1984, Corporate Financing and Investment Decisions when Firms have Information that Investors Do Not Have. Journal of Financial Economics, Vol. 13, 187-221.

Neely, W.P., 1987, Banking acquisitions: Acquirer and target shareholder returns. Financial Management, 16, 5-15.

Orgram, D., 1999, Market satisfaction. Telecommunications – international edition, Vol. 33, no. 7, 25–28.

Palepu, K.G., 1986, Predicting Takeover Targets – a Methodological and Empirical Analysis. Journal of Accounting and Economics 8, 3-35.

Rappaport, A., Sirower, M.L., 1999, Stock or Cash? The Trade-Offs for Buyers and Sellers in Mergers and Acquisitions. Harvard Business Review, Nov–Dec 1999, 147–158.

Rau, P.R., Vermaelen, T., 1998, Glamour, value and the post-acquisition performance of acquiring firms. Journal of Financial Economics 49, 223–253.

Rhoades, S. A., 1996, Mergers and Acquisitions by Commercial Banks, 1980-1994. Staff Study, Federal Reserve Board, January.

Roll, R., 1986, The Hubris Hypothesis of Corporate Takeovers. Journal of Business, vol. 59, issue 2, 197-216.

Servaes, H., 1991, Tobin's Q and the Gains from Takeovers. Journal of Finance, Vol LXVI, No. 1, March, 409-419.

Shapiro, C., Varian H., 1998, Information Rules: A Strategic Guide to the Network Economy. Harvard Business School Press.

Singal, V., 1996, Airline Mergers and Competition: An Integration of Stock and Product Price Effects. Journal of Business, Vol. 69, no. 2, 233–268.

Sirower, M.L., 1997, The Synergy Trap – how companies lose the acquisition game. The Free Press.

Stevens, D.L., 1973, Financial Characteristics of Merged Firms: a Multivariate Analysis. Journal of Financial and Quantitative Analysis, March, 149-158.

Sushka, M.E., Bendeck, Y., 1988, Bank Acquisitions and Stockholders Wealth. Journal of Banking and Finance, 12, 551-562.

Travlos, N., 1987, Corporate Takeover Bids, Method of Payment, and Bidding Firms' Stock Returns. The Journal of Finance, September, 943-963.

Varian, H., 1999, Intermediate Microeconomics: A Modern Approach; Fifth Edition. W. W. Norton and Company.

Weston, J.F, Chung, K.S, Hoag, S.E, 1990, Mergers, Restructuring, and Corporate Control. Prentice Hall, New Jersey.

Other

Bell System Memorial http://www.bellsystemmemorial.com/

European Commission, Directorate-General for Competition, 2000, Competition policy in Europe and the citizen. Office for Official Publications of the European Communities, Luxembourg.

European Commission, Directorate-General for Competition, 2000, XXIXth Report on competition policy: 1999. Office for Official Publications of the European Communities, Luxembourg.

Pitofsky, R., 1999, Prepared Statement of the Federal Trade Commission Before The Committee on Commerce, Science and Transportation, United States Senate, November 8, 1999.

U.S. Department of Justice and the Federal Trade Commission, 1984, U.S. Department of Justice Merger Guidelines. June 14, Washington DC, United States.

U.S. Department of Justice and the Federal Trade Commission, 1992, Horizontal Merger Guidelines. April 2, 1992 (Revised April 8, 1997), Washington DC, United States.

Vodafone Annual Reports, available at www.vodafone.com/investor

www.citibank.com (Financial glossary)